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EDITOR:

JAMES B. HUNTER, M. D.

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MEDICAL JOURNAL:

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MEDICINE AND THE COLLATERAL SCIENCES.

VOL. XXVIII.] JULY, 1878. [NO. 1.

Original Communications.

ART. I.—*On the Nature and Pathological Histology of Psoriasis.* By A. R. ROBINSON, M. B., L. R. C. P. and S., Edinburgh; Special Pathologist to the New York City Asylum for the Insane; Attending Physician to the Bellevue Bureau of Out-door Poor, Children's Department; Member of the New York County Medical Society, of the New York Dermatological Society, etc.

As the views which I have formed of the nature and pathological histology of psoriasis, after careful microscopical observation of a large number of psoriatic portions of skin, differ from those which have been enunciated by other observers of this affection, I propose in the present paper to describe in detail all the changes which have been observed by me as taking place in the skin in the different forms and stages of this disease.

The special views which I will give as to the nature of the disease are views which have been forced upon me by repeated microscopical study of the disease in its early stage; and although the solution of this question was attended with considerable difficulty, and required not a little time, yet I feel convinced that they are based upon correct observation of the comparative order of change in the different tissues of the skin at the seat of the eruption, and are now published in the conviction that thereby I will contribute to our present knowledge of the nature and pathological histology of psoriasis.

In order that the reader can follow easily and intelligently the description of the various changes which take place in the different stages[1] of the disease, or rather, in the different forms and conditions presented by the eruption at different periods, and thus be enabled to have a distinct idea of the pathological anatomy of any patch of eruption when viewing it with the naked eye, it is necessary to glance briefly at the clinical characters of the disease. With the exception of this condensed account of the symptoms of psoriasis, and an account of the views of Simon, Wertheim, Rindfleisch, and Neumann, on its nature, I will not trespass upon the time of the reader with compilation, but will confine myself strictly to a description of what I have observed, to the conclusions which have been formed therefrom, and to a defense of those conclusions.

DEFINITION: Psoriasis is a chronic disease of the skin, characterized by elevated, reddish, dry patches of variable size and shape, which are covered by whitish mother-of-pearl-like scales, more or less closely united together.

SYMPTOMS: Psoriasis commences as small, reddish, elevated spots which spread peripherically, producing patches of variable size and shape. On account of the difference in the size and form of the different patches, the disease has been divided into several varieties. When the spots are about the size of a pin-head or less, it is called psoriasis punctata. This is the form the eruption first assumes. If the patches are larger and resemble somewhat drops of mortar, it is called psoriasis guttata. If they are about the size of a twenty-five cent piece, it is called psoriasis nummularis; and if they cover a large extent of surface, psoriasis diffusa. If the patches heal at the centre and increase at the periphery, it is called psoriasis orbicularis; and, if neighboring rings meet and form bands, it is called psoriasis gyrata.

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[1] I make use of the term "stage of the disease," to represent periods of existence of the eruption, for the sake of convenience, the eruption in psoriasis being in reality not divisible into stages.

These divisions are, however, superfluous, as the nature of the disease remains the same, whatever form the eruption may assume.

Soon after the appearance of the disease as a small, reddish, papular elevation, whitish scales begin to appear on the summit of the papule, and increase in quantity as long as the disease is actively increasing in extent. The scales are seated upon a hyperæmic base, they are easily detached with the finger nail, and their removal, together with a few underlying epithelial cells of the Malpighian layer, is followed by the appearance upon the papule of oozing or bleeding points. The amount of scaling varies in different persons, in the different patches of the eruption in the same person, and in a single patch according to the period of existence, and to the condition of the eruption. More scales are present on a given area, when the disease has lasted a certain period and is still actively progressing, than at the commencement of the eruption, or during the period of disappearance. Sometimes, especially on stationary chronic patches, situated on the front part of the foreleg (and occasionally on other parts of the body), the amount of scales formed varies but little within a lengthened period of existence. The amount of scaling diminishes when the normal nutrition of the skin is interfered with, either from general mal-nutrition, or from an acute febrile disease. Generally fewer scales are formed in females than in males, and on patches seated on the flexor surfaces of the body than on the extensor surfaces. Fewer scales are also formed in very young persons than in those of mature age. In short, where the epidermic layer of the skin is thin, the scales are less in quantity than where this layer is more strongly developed.

The whitish appearance presented by the scales is due to the presence of air in the spaces between the shriveled and dried-up epithelial cells.

In the active period of the eruption more especially, scraping or scratching the surface of the patches sufficiently to remove the epithelial cells seated over the apex of the papillæ is followed by the escape of more or less blood from the blood-vessels of the underlying papillæ. Sometimes there is only an oozing out of a very small quantity, in other cases actual bleeding may occur and continue several minutes, causing the loss of several drachms of blood. As the eruption retro grades, the amount of blood which escapes after scraping or scratching gradually decreases, until finally the affected part acts in this respect the same as healthy skin.

In uncomplicated cases of psoriasis, there is never any vesiculation, pustulation, or discharge of any kind. When a patch of eruption has existed some time, there is more or less infiltration of the skin and diminution in the elasticity of the affected part. On account of this thickening and diminution of elasticity of the skin, the surface of the affected part may become cracked and fissured, and secondary processes, as eczema, etc., may arise and complicate the primary eruption. This fact is of value when considering the existence of any relation between eczema and psoriasis. After the disappearance of the eruption in psoriasis, dark pigmented spots, corresponding in size and location to the seat of the eruption, are generally seen. The colored spots continue a greater or less period of time, and are finally replaced by normal skin. Very rarely is the pigmentation permanent. In one of my patients, white spots instead of dark ones followed the eruption, and remained several weeks before being replaced by normally colored skin. The favorite seats for the development of psoriasis are the elbows, knees, and flexor surfaces of the body; though it may appear on any part of the skin. It is very rarely met with under the age of puberty, and is very frequently hereditary.

There are other points in the clinical history of this eruption, but the above condensed description is sufficient for the purposes of the present paper, which, as I have already said, is specially intended to discuss the nature and pathological histology of the disease.

NATURE AND PATHOLOGICAL HISTOLOGY: Gustave Simon[1] considered that the red spots which precede the production of the scales arise probably in consequence of a chronic inflammatory process, and that, if this supposition is correct, the swelling of these spots depends upon the accumulation of inflammatory products. The condition of chronic inflammation of the skin present in psoriasis he thought has probably a share in the excessive formation of scales, "in that the newly-formed epidermis is continually separated from the cutis by the accumulating exudation beneath it. That part of the epidermis still closely united with the cutis is thinner than in the normal condition, that is, it is in a condition of atrophy." Simon considered that it is incorrect to regard psoriasis as an hypertrophy of the epidermis, "because the scales which make up the thickening consist of dead epidermis, which is no longer nourished, and is only loosely connected with the skin."

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[1] "Die Hautkrankheiten, durch anatomische Untersuchungen erläutert." Berlin, 1851, p. 212.

Wertheim examined portions of affected skin taken from four individuals, and "found the papillæ, both in their horizontal and perpendicular diameter, enlarged 12 to 15 times their normal size. The blood-vessels of the papillæ appeared as if the enlarged blood-vessel was much curved and bent in its course to the apex of the papilla, in such a manner that it seemed to completely fill up the stroma of the latter." From this enlargement of the papillæ and the above described changes in the blood-vessels, he considered that there arises an obstruction to the circulation, which produces the sharply-contoured psoriasis patches. Wertheim's view of the nature of the disease, therefore, was that it arises from changes which take place in the blood-vessels of a circumscribed region.

Neumann[1] has studied the histology of the disease by the aid of the microscope more than any previous observer had done, he having made sections from both recent and old psoriasis patches. "He found the rete Malpighii and the epidermis greatly developed, and the papillæ, especially in the older patches, enlarged. The corium as well as the papillæ filled with numerous cell-growths. These appear in large numbers, especially along the course of the blood-vessels; they are, however, also found isolated and show numerous prolongations. They appear especially in the upper layers of the corium and in the apex of the papillæ, where they collect in a cluster. If we follow a large vessel of the corium and the branches which pass from it into the papillæ, one finds, besides the already mentioned excessive cell productions which gather around the wall of the blood-vessels, that the small branches which run into the papillæ spread themselves in a straight line the entire length of the papillæ, and in some, the vessel in the apex is seen to be many times bent; in such a manner that the cells lying upon the wall of the vessel, and which previously had a similar direction, now lie horizontally or obliquely. A transverse section through the papillæ shows the cell collection filling up almost the entire stroma of the papillæ. They form a circle, in the centre of which is a blood-vessel."

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[1] "Lehrbuch der Hautkrankheiten," Wien, 1870, p. 201.

From these observations, Neumann concludes that psoriasis is an inflammatory disease of the papillæ, and of the upper layer of the corium, which is accompanied by marked excessive cell-production, which causes enlargement of the papillæ. The excessive production of epidermis he regards as only a hyperplasia of the cells of the Malpighian layer, which is accompanied by an increased desquamation of the epidermic layer.

According to Rindfleisch,[1] the squamous exanthem takes its origin in an inflammation of circumscribed spots of the skin. These are reddened, slightly swollen, and endowed with other attributes of an inflammatory hyperæmia; and as a consequence of the hyperæmia, there appears, not an exudation in or under the epidermis, but only an abundant formation of otherwise normal epidermic cells. Why the cells in psoriasis are collected in heaps instead of being gradually desquamated is, in his opinion, because the cells do not undergo the whole process of change which occurs in normal epidermic cells. He finds the condition reached by them to be that corresponding to the condition of development present in the transition cells lying between the cylindrical cells of the mucous layer and the lowest cells of the horny layer. Instead, therefore, of becoming horny, there occurs simply a drying up of the soft protoplasm. In this drying up, the cells are naturally stuck together, and thus maintain mechanical connection with the body. According to this observer, an increase of the normal production can only take place under a corresponding increase of the nutritive processes in the papillary bodies. The same process, therefore, which produces epithelial cells increases the normal nutrition of the connective tissue in the papillary bodies, and produces a hyperplasia of this region. He regards psoriasis, therefore, as an inflammatory hyperplasia, and denies to the cells of the Malpighian layer the power of primary independent action.

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[1] "Lehrbuch der pathologische Gewebelehre," Leipzig, 1873, p. 259.

Views differing from the above have been expressed by other writers; but, as they were not based upon independent microscopical observation, no credit can be accorded to them, even should they prove to be correct. On this account I do not quote their views.

In discussing the pathological histology and nature of this disease, I will describe the changes which I have observed as taking place in the different periods of existence of the eruption, and in its different forms. To attain the object of the paper, more space will be devoted to a description of the changes which have been observed in the affected skin in the earlier periods of the eruption, as it is only by careful study of the changes occurring during the earliest period of recognition with the naked eye that we can hope to arrive at any safe conclusion as to the real nature of the disease.

The question as to the tissue primarily affected, and the nature of the changes which occur, being discussed and settled, as far as possible, the study of the succeeding changes is rendered less difficult, in that we are enabled to separate the essential from the accidental histological changes which occur in psoriasis as well as in many other skin diseases. By essential changes are meant those changes which invariably form a part of the disease itself; and by secondary changes, those which are not constant, and depend for their occurrence upon certain conditions of the general system or of the part affected, or depend upon external agencies.

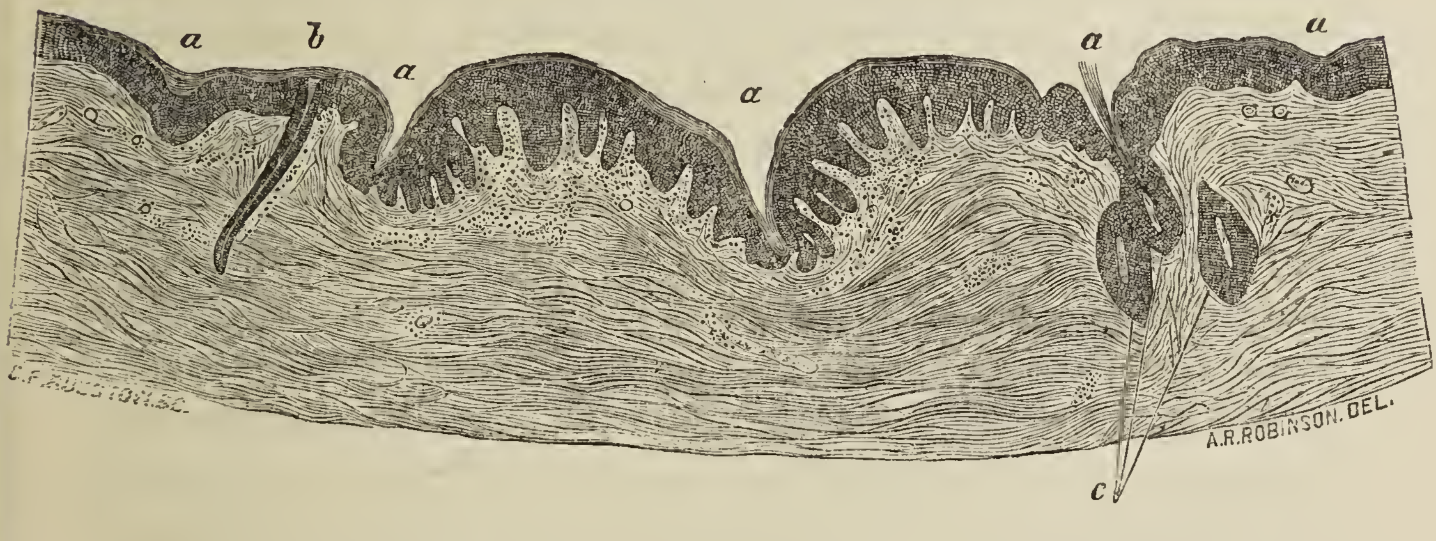
Commencing, then, with the study of the disease as it presents itself in the earliest and simplest form in which it is recognized, viz., a small papule (psoriasis punctata), smaller than a pin's head, somewhat elevated above the general surface, reddish in color, having but very few, if any, shining, pearl-like scales upon its summit, and afterward observing the changes which subsequently occur in such a papule in its different periods of existence until it finally disappears, we will probably arrive at correct conclusions as to the nature and pathological histology of this affection. We must study not only the condition present in psoriasis punctata, but also that in psoriasis guttata, psoriasis nummularis, psoriasis gyrata, and also those cases where infiltration is present or absent; in short, in all the conditions under which psoriasis presents itself to our observation. Especially is it necessary that healthy tissue from the immediate neighborhood of the eruption be examined, in order to enable one to compare the normal with the abnormal skin, and to detect variations in structure, which otherwise could not be recognized with positiveness; as in such a varying tissue as the skin the normal condition of a certain part would be unknown. I refer, especially, to variations in the size of the papillæ, and of the Malpighian layer, two structures which differ so much in size in different persons, and on different parts of the body of the same person. A recognition of this fact will convince any one of the necessity of always comparing, if possible, the physiological with the pathological tissue, if a correct idea is to be formed of the amount and nature of the changes which occur in most skin diseases, and especially in psoriasis.

In removing pieces of skin for microscopical study, I have nearly always removed a portion of healthy tissue along with the affected part; and, in studying the changes which take place in the different stages of the eruption, I have endeavored to do so by examining what were primarily similar forms of eruption on a single individual, at different periods from their commencement to their disappearance. For instance, a person has an outbreak of psoriasis punctata; I would remove some papules, along with the normal skin surrounding them. Afterward, when the eruption became a psoriasis guttata, portions of affected and normal skin would be removed, and so on throughout the whole course of the disease. In one case I removed a pigmented portion of skin three weeks after complete disappearance of all elevation above the surface and of whitish scales. This portion was removed from a spot not more than half an inch distant from the seat of two papules which I had removed when each of them was not larger than a pin's head. I studied the disease in this manner in several persons, and obtained therefrom more satisfactory results than by removing only one portion of skin from a single individual.

All the pieces of skin removed were first placed in Miller's liquid, then in dilute alcohol, and finally in absolute alcohol, previous to making sections. The treatment of the sections differed in no respect from that usually followed in histological research on such tissues.

The appearance presented by a section of a papule of a few days' existence, when viewed with a low power, is given in Fig. 1. This papule was removed from the back, near the inferior angle of the scapula, from a boy eight years of age. The papule was about the size of a small pin's head, and whitish scales were only commencing to form upon its apex. Healthy tissue is present on both sides of the section, externally from *b* on the left side of the drawing, and from *c* on the right side. The piece of skin became somewhat curved during the process of hardening, and as a consequence, the elevation of the affected part above the normal tissue is not seen in the section drawn. Examining such a section with the aid of a low power, a marked difference is seen between the normal and abnormal tissue. Commencing with the corneous

FIG. 1 × 75 diameters.



layer of the epidermis, there is scarcely any difference to be observed in the thickness of this layer in the two regions, there being but a very slight increase, if any, in that part corresponding to the seat of the papule. This is the reason why, at the earliest period of the papule formation, so few whitish scales are present. In fact, at the very commencement of the disease they are absent.

The Malpighian layer shows marked variations from the normal condition. While the normal Malpighian layer on both sides of the section in Fig. 1 shows an almost level undersurface, i. e., the papillæ are but very slightly developed; that portion of the layer occupying the centre of the section, and corresponding to the region of the papule, presents more or less deep and broad prolongations downward into the cutis. These prolongations are larger in the central part of the papule than at its margin. As a consequence of this growth downward of the interpapillary portion of the Malpighian layer, there is a larger papillary space in this region than exists in the normal tissue. This apparent increase in the size of the papillæ does not, however, depend upon changes taking place in the normal papillæ, but upon the growth downward of the Malpighian layer. This is readily seen by comparing the healthy with the psoriatic part of the section, and observing that the apices of the papillæ are no nearer the surface in the latter than in the former, while there is a great increase in the thickness of the Malpighian layer in the affected part, especially in its interpapillary portion. This growth inward of a conically-shaped structure, having the apex of the cone downward, produces in proportion to the length of the cones a corresponding increase in the length of the space separating them. This prolongation downward being greater at the centre of a young papule than at the margin, on account of the greater age of the former structure, the long axis of the inter-Malpighian space in the former is greater than in the latter. This is readily seen in Fig. 1, though sections of the papules which contain no hairs show this condition much better.

In the papillæ and superficial part of the corium within the psoriasis region, there are seen enlarged blood-vessels and round bodies in varying numbers in the surrounding tissue, while in the non-papular region no enlargement of blood-vessels is, as a rule, observed, and also no white blood-corpuscles.

The deeper parts of the cutis appear normal, as well as the sebaceous and sweat glands.

Examining the different structures with a high power, we learn nothing further of changes in the corneous layer than with the low power. There is a slight increase, perhaps, in the thickness of this layer.

With regard to the Malpighian layer, an increase in the size of this structure from increase in the number of the normal epithelial cells is observed. This increase takes place principally in the interpapillary portion of the layer, though also in other parts, and the excessively-produced cells which make up this increase in size differ in no respect from those seen in the normal tissue; unless it be that the newly-formed ones are somewhat smaller, and that those composing the layer next the cutis do not form as regular a cylindrical row as when the cells are not produced so rapidly. Very frequently, however, no difference is to be observed between the cells in the normal and the morbid tissue. The increase in the size of the Malpighian layer arises simply from an increase in the number of cells present in the normal condition, i. e., there is a hyperplasia of this structure. This increase of cells is greatest in the central part of the papule, and least at the margin. In Fig. 2 I have drawn the appearances presented near the centre of a papule a few days old. It will be seen by reference to that figure that there is a great increase in the size of the Malpighian layer throughout its whole extent, and especially in its interpapillary portion. In order to have a correct idea of the amount of increase of this layer in a papule not larger than a pin's head, I have represented, in Fig. 3, surrounding normal tissue, which was removed along with the papule from which the section represented by Fig. 2 was made. Both figures are magnified the same number of diameters.

It is difficult to represent by wood-cuts the form presented by the cells composing the lowest layers of the rete Malpighii in such a section as is given in Fig. 2. In addition to the usually cylindrical-shaped cells, there is a considerable number of smaller cells which seem to be in the process of growth to afterward become ordinary epithelial-shaped cells. These cells lie close to the cutis, have a large nucleus in comparison with the surrounding protoplasm or cell body, and are evidently young epithelial cells. A considerable number of the cells forming the lower rows of the Malpighian layer contain two nuclei, generally lying directly opposite each other, and separated only by a narrow line. From the increase in the number of such cells over those met with in normal tissue, and from what we know of the manner of formation of new epithelial cells, I think we are justified in generally regarding those cells containing two nuclei as cells in process of division and multiplication. The result of this division is the small cells I have already described. The cells composing the lowest layers being composed largely, if not entirely, of living matter, can divide much more readily than those cells situated near the corneous layer. From what I have observed in psoriasis during its earliest stage, when there is actual hyperplasia of the Malpighian layer, and before round cells are found outside the blood-vessels, I am led to believe

Fig. 2 × 300 diameters.

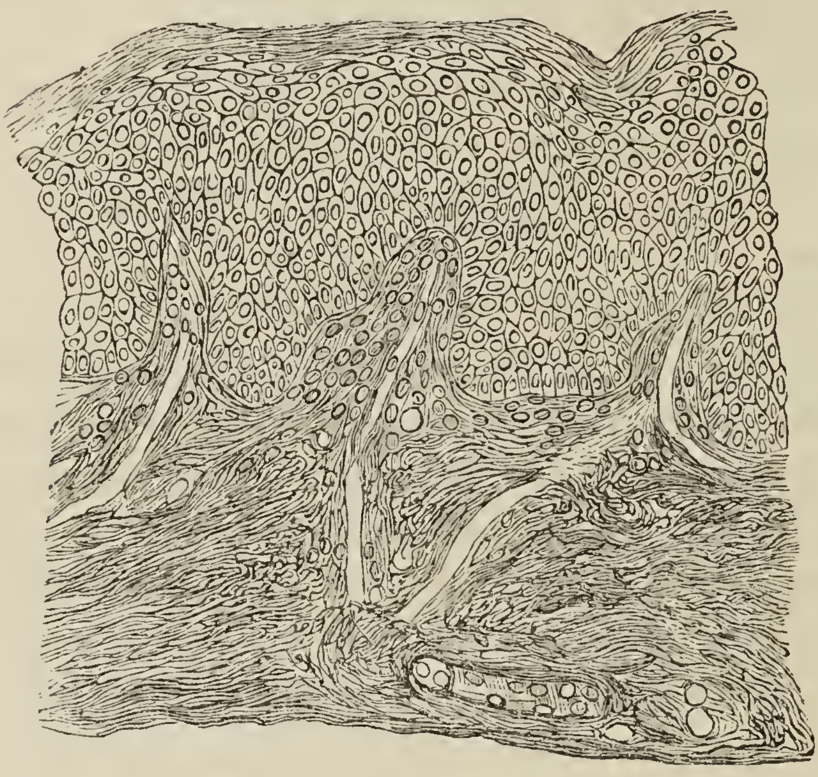
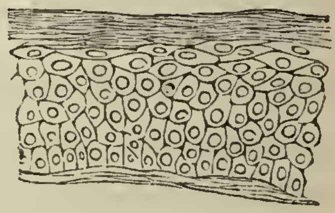


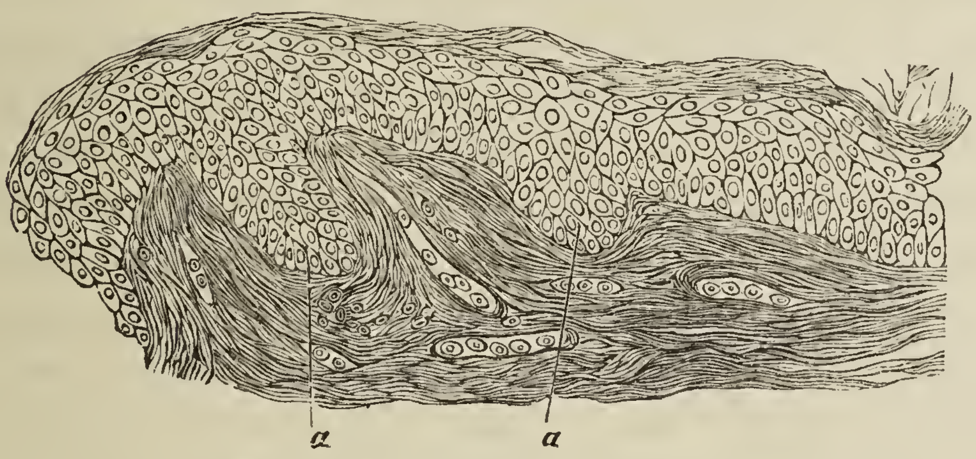
Fig. 3 × 300 diameters.



that all the new cells of this layer are formed from the living matter composing the lower rows of cells of the same layer, and especially from that lying next the cutis. It does not seem to me that any of the Malpighian cells are formed from outwandered white blood-corpuscles at any stage; the absence in the cutis of the latter in the earliest period of the eruption, when there is rapid development of new cells, shows that they do not take any special part in the hyperplasia; and to ascribe to them an active part in the process in the later stages, when the papillæ and cutis contain a large number of them, is to give two separate sources of origin to the cells of the rete Malpighii.

Generally, the nearer the margin of the papule, the less is the hyperplasia of the Malpighian layer, and at the margin itself is to be found the first stage of the hyperplastic process. Fig. 4 represents the margin of a papule, on the right hand side of which is normal tissue, and on the left pathological. At *a* are seen two prolongations downward. They are separated further from each other, and are more sharply defined, than is usually the case on the margin of a spreading patch of psoriasis. Usually, there is a more gradual shading off of the hyperplastic structure into normal tissue than was present in this case.

FIG. 4 × 300 diameters.



By reference to Figs. 1, 2, and 4, it will be seen that in none of them is the Malpighian layer encroached upon by an upward growth of the papillæ. Comparing the thickness of the normal Malpighian layer on both sides of Fig. 1 with the abnormal tissue in the centre, and the right side of Fig. 4 with the left side, and also Fig. 2 with Fig. 3, it is evident that at no place in the abnormal tissue do the papillæ approach nearer the corneous layer than they do in the normal structure.

As regards the relation which this hyperplasia of the Malpighan layer holds to the development of the papule as seen by the naked eye, I have found by microscopical examination that the hyperplasia precedes the elevation of the papule above the general surface, i. e., that, outside of what appears to the naked eye to be the margin of the papule, there is a spreading hyperplasia of the Malpighian layer. This fact was proven by the following observation, made to settle this and another question which, as will afterward appear, is of considerable importance. Taking care to include, as usual, a sufficient quantity of normal tissue along with the abnormal, I removed two small papules, each about the size of a pin's head, separated by apparently normal tissue, i. e., tissue that was neither hyperæmic nor elevated above the general surface, and treated the excised part in the usual manner, with Miller's liquid and alcohol, previous to making sections for microscopical observation. The papules were separated from each other by a distance not greater than the diameter of one of the papules. On studying sections which included external normal tissue, the two papules, and the apparently normal skin separating the two latter, I found that the papules were much nearer to each other at the base than one would have supposed, judging from the appearance of the intervening skin before excision. Instead of the hyperplastic Malpighian layer of each papule being separated from the other by the diameter of a pin's head, as seemed to be the case with the naked eye, they were not separated by more than one-fifth of that distance. In fact, in one section, it seemed as if they had actually joined each other.

To this general hyperplasia of the Malpighian layer which we have been discussing, is partly due the elevation of the papule above the general surface, principally, however, by the hyperæmia and cutis infiltration which sooner or later accompanies it.

Examination of the papillary layer of the cutis with a high power shows differences in the condition present according to the relation of this structure to the papule. Outside of the region of Malpighian hyperplasia, there is nothing abnormal to be seen, unless that occasionally a blood-vessel appears to be slightly enlarged. This enlargement of the blood-vessels was rarely observed, and the conditions of the structure forming the papillary layer and the cutis in this region were generally normal as far as microscopical observation could tell. Within the region of the papule, however, changes are observed which differ in different papules and in different parts of the same papule. As a general rule there is great increase in the amount of structure lying between the Malpighian prolongations in the central part of the papule. If there is no normal adjoining tissue to compare with the morbid structure, one would suppose, as has been done by the authors I have quoted, that there is a great increase in the size of the papillæ ; in fact, that there is a marked hyperplasia of the papillæ in this disease. If we call papillæ any cutis structure that lies between the Malpighian cells, regardless whether the latter is in a normal or in an abnormal condition, then one is justified in saying that the papillæ are greatly enlarged, as there is always an increase in psoriasis in the length, and often in the breadth, of the space separating the Malpighian prolongations downward into the cutis over the size of the normal space.

Toward the margin of the papule, this inter-Malpighian space is less in extent in proportion as there is less hyperplasia of the Malpighian layer. The cause of this apparent increase in the size of the papillæ is readily understood by a study of Figs. 1, 2, 4, 6 and 8, by which it is easily seen that, to produce an increase in the size of the inter-Malpighian space, it is only necessary that the interpapillary part of the Malpighian layer, which is more or less cone-shaped, with the apex pointing to the cutis, be simply extended downward. That such is the nature of the process that takes place in the Malpighian layer has I think been already shown, as I have pointed out that the papillæ do not grow upward to any appreciable extent, or approach the corneous layer nearer than they do in health. Although these interpapillary spaces are of greater length than the papillæ in the surrounding normal tissue, there is not a corresponding increase in their diameter. Adjoining Malpighian prolongations downward approach each other more or less closely, and produce a corresponding decrease in the size of the upper part of the space separating them. See Figs. 1, 2 and 6.

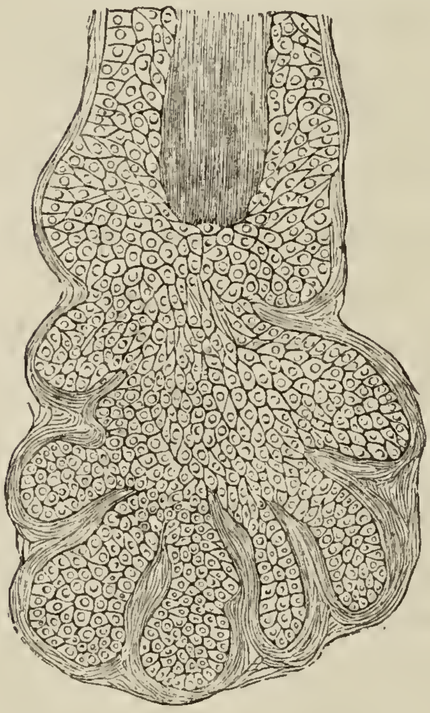
The blood-vessels of the papillæ are more or less dilated in the different papillæ, and this dilatation is greatest in the centre of the papule and least at its margin. (I am still confining my description to a young papule of a few days' existence, and about the size of a pin's head.) In some papules this dilatation of the blood-vessels exists to a very slight extent, as far as can be judged from microscopical examination. In those cases in which I have found but very slight dilatation, there were also very few white blood-corpuscles outside the vessels in the neighboring tissue. In those papillæ where the blood-vessels are more dilated, there is always a greater or less number of out-wandered round cells to be seen. Such a condition is represented in Fig. 2. This drawing was made from a part of the papule situated about midway between the centre and the margin of the latter. There was a considerable number of round cells in the inter-Malpighian space, and but very few in the deep cutis. In the central part of this same papule a much greater number of out-wandered white blood-corpuscles were present in the inter-Malpighian space, and a considerable number also in the cutis beneath it, along the course of the blood-vessels. In the early stage of the disease the blood-vessels, though dilated, are not bent or curved, as generally occurs in the later stages. Along with this dilatation of the blood-vessels, and outwandering of the round cells, there is necessarily, to a greater or less extent, a transudation of serum into the adjoining tissue. These three things, viz., dilatation of the blood-vessels, transudation of serum, and the presence of white blood-corpuscles, make up the sum total of the pathological condition present in the papillæ during the early stage of the disease. The amount of hypertrophy of the papillæ produced by these three conditions is very small indeed, and is often more than counterbalanced by the encroachment upon them of the Malpighian layer by its hyperplasia. These three processes do not proceed, nor are they coeval with the commencement of the hyperplasia of the Malpighian layer, otherwise they would have been present in the tissue between the two small closely-seated papules I have already mentioned, or at the margin of a single spreading papule.

In the deeper portions of the cutis, no change is observed in its structures in the earliest stage of the disease; and even in the centre of a papule of several days' duration, such as is represented in Fig. 2, there is nothing abnormal unless it is a slight dilatation of some of the blood-vessels.

We thus see that in the earliest stage of psoriasis there is no special hypertrophy of the papillæ, though the inter-Malpighian space is increased in extent. This increased space is not formed by hypertrophy of the structures forming the normal papillæ, but almost entirely of normal preëxisting cutis which has not changed its location or undergone any marked changes. The active changes take place in the Malpighian layer, and not in the inter-Malpighian spaces, there being nothing abnormal in the latter except the three processes mentioned above, and which necessarily do not produce much, if any, enlargement of the papillæ. As therefore the increase in the size of the inter-Malpighian space does not depend upon the production within the papillæ of new elements, as occurs in genuine hypertrophy of these structures, I do not think we are justified in calling the whole of the inter-Malpighian spaces in psoriasis, papillæ; and if not, then there is no special hypertrophy of this layer in the early stage of psoriasis, and, as we will see later on, also not in the other stages of the disease.

The hair in psoriasis becomes changed from the commencement of the disease. The external root-sheath; the structure corresponding to the Malpighian layer of the epidermis becomes increased in size in the same manner as the latter structure. There is a real hyperplasia, with an extension of the hyperplastic structure into the surrounding cutis. This growth occurs principally at the root of the hair, though it is met with also along the shaft. Fig. 5 represents a hair-follicle which was present in the papule from which Fig. 1 was drawn. Every hair situated within a psoriasis papule has this hyperplasia of its external root-sheath. This hair-follicle was so deeply seated that no hyperæmia whatever of the blood-vessels surrounding it could be observed. That changes so great as are shown in this hair occur at so early a period of the disease, and unassociated with recognizable changes in the blood-vessels or tissue surrounding it, assists very much, it seems to me, in proving that the disease has its origin in the Malpighian layer.

FIG. 5 × 290 diameters.



The sebaceous glands and sweat-ducts show nothing abnormal.

The foregoing is the pathological histology of a psoriasis punctata of a few days' existence; and it seems to me that the only question that remains to be answered before we can speak definitely of the nature of the disease is whether this hyperplasia of the Malpighian layer is a result of a previous hyperæmia, or are the changes in the blood-vessels secondary to the hyperplastic process? When we consider that such hyperæmia as is present in scarlet fever, measles, and some other diseases, can, and generally does, completely disappear after death, it becomes a question whether something similar does not occur in psoriasis, and that, though no hyperæmia is recognized by the microscope external to the margins of the papule, yet it might have existed there during life, and was the cause of the hyperplasia; the increase of the normal production of the cells of the Malpighian layer being caused by the increased amount of nutriment carried by the blood-vessels to the papillary region. In the solution of this question I have spent much time, and could not for a long time arrive at any definite conclusion. I have been quoted as holding a certain view on this point nearly two years ago, but at that time, though I had examined a great many sections, I was still undecided as to its nature. Until then, I had only examined single papules, and from such examination it was impossible to state with positiveness the relation between the changes in the blood-vessels and those in the Malpighian layer, though it seemed almost certain that the hyperæmia was secondary to the hyperplasia, for this reason, that in some papules there was but very slight dilatation of the blood-vessels of the papillæ, while in other papules of the same age there would be very great dilatation; and there seemed to be no special relation between the amount of dilatation and the amount of hyperplasia. This, together with the great changes observed in the external root-sheath of the hair within the follicle, at the earliest stage of the disease—changes unaccompanied, as far as microscopical examination could show, with changes in the blood-vessels surrounding the hair-follicle—left but little doubt in my mind as to the nature of the affection. The question seems to me, however, to be satisfactorily answered by the results of the examination, already described, of two papules seated near each other, but separated by apparently normal skin; at least no hyperæmia, or round cell infiltration, or œdema, was to be observed. As already mentioned, microscopic examination showed that the papules had almost, if not actually, joined each other in the Malpighian layer, though not above the level of the skin, i. e., a hyperplasia was occurring in a situation where no hyperæmia was appreciable to the naked eye, or could be detected by the microscope as having existed.

In all the other forms of eruption in psoriasis, we have only to do with differences of degree in the pathological process, the nature of the disease remaining the same as in psoriasis punctata. In psoriasis guttata, psoriasis nummularis, and psoriasis diffusa, the process has simply extended over a large area of skin, and as a consequence; the process of hyperplasia being the essential process in the production of the increase in size, we can expect to find but little, if any, changes in the Malpighian layer in the later stages of the eruption different from those observed in the papular stage, except in the extent of the hyperplasia, and the consequent increased thickness of the rete Malpighii. As regards those secondary processes which showed marked differences in different papules in the early period of the eruption, they will naturally show differences in the other forms, and consequently there will be observed in different patches differences in the amount of dilatation of the blood-vessels, in the amount of œdema in the surrounding tissue from transudation of serum, and in the number of emigrated white blood-corpuscles. In all cases in which the eruption remains as a psoriasis punctata, and does not increase in extent, no changes beyond those already described can take place, except such as are associated with the disappearance of the eruption. The nature of these changes will be given after the pathological histology of the other forms of the eruption has been described.

In Fig. 6 is given the appearance sometimes presented in an early stage of psoriasis guttata. This figure was drawn to show the great dilatation of the blood-vessels which is sometimes present in psoriasis. None of the dried-up cells forming the whitish scales are shown in this figure, or in Figs. 7, 8, and 9, as they had become detached during the preparation of the section. As already mentioned, however, in the clinical history, the amount of whitish scales formed depends upon the activity, duration, and location of the eruption in each individual. The appearance presented by a perpendicular section through these scales is given in Fig. 10. The cells are dried up, bent, separated to a great extent from neighboring cells, and the interspaces are filled with air. In Fig. 6 the hyperplasia of the Malpighian layer is very great, and here again it can be observed that this hyperplasia has occurred almost exclusively in the interpapillary part of the

FIG. 6 × 330 diameters.

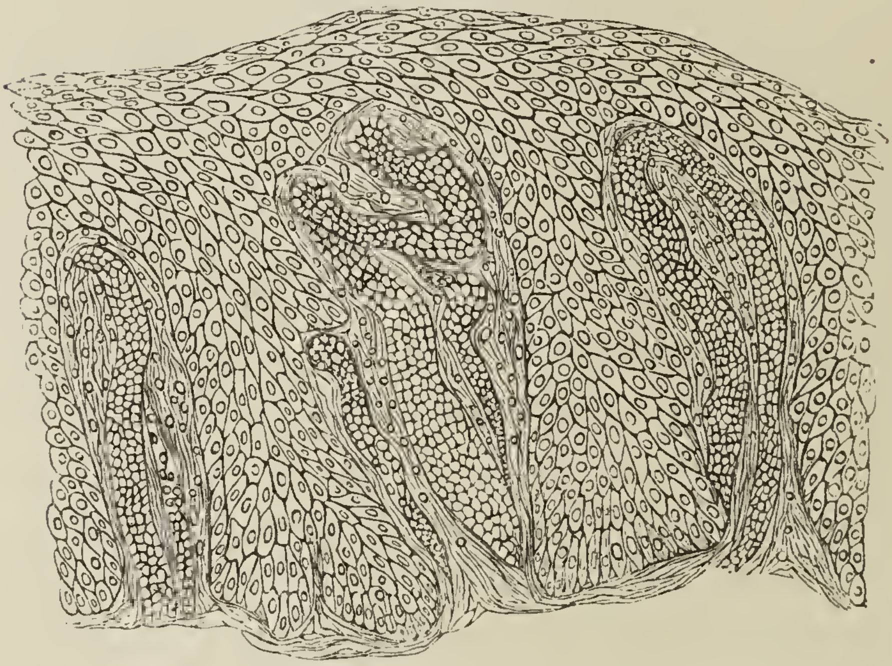
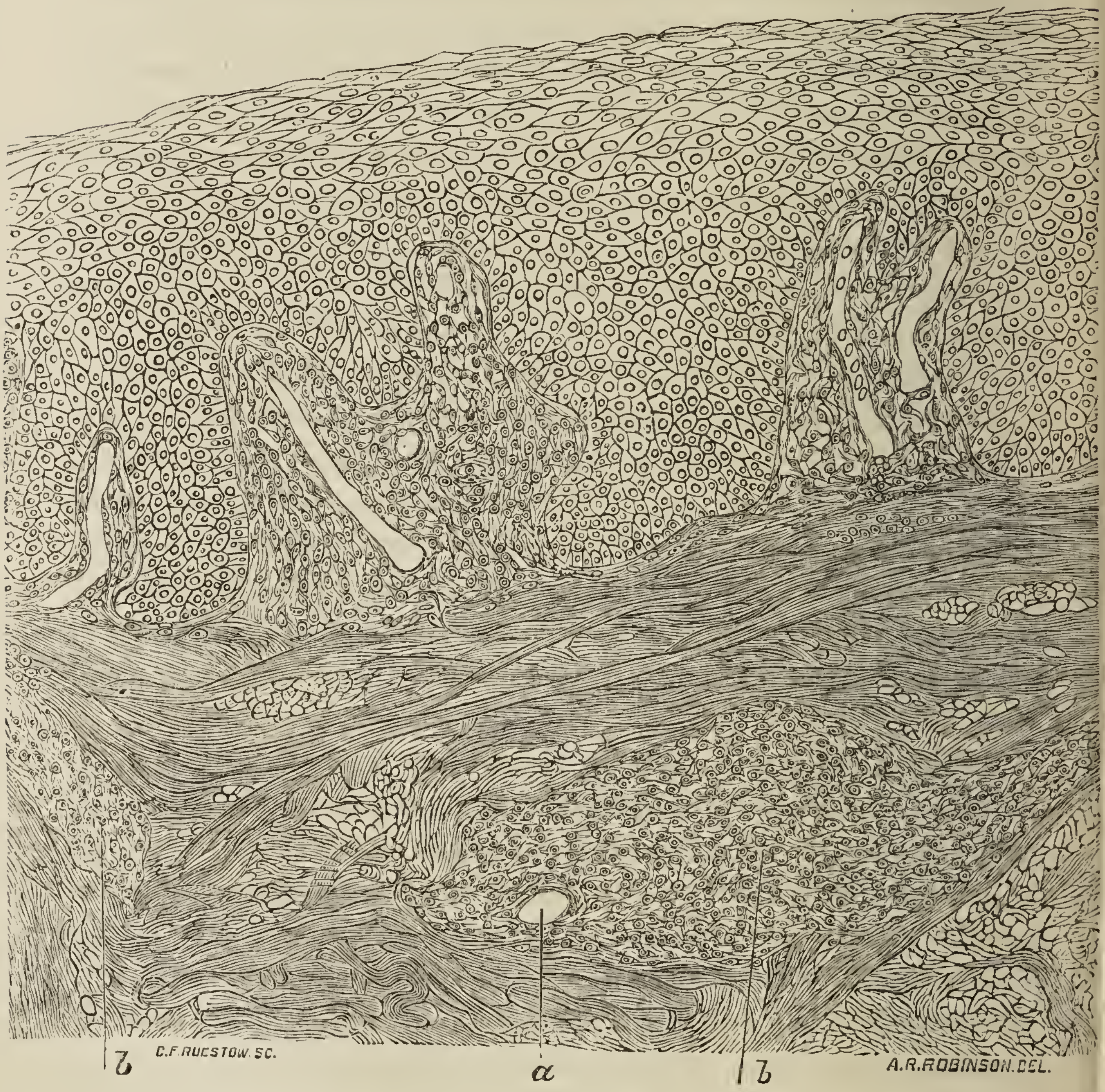


FIG. 7 × 120 diameters.

layer. The prolongations inward are not conical in form, and the adjoining prolongations approach nearer each other below than above. The excessively-produced cells differ in no respect from those already described as constituting the hyperplasia in the earlier stage. The blood-vessels are enormously dilated, very much bent, curved within the papillæ, and distended with blood-corpuscles. In the patch of eruption from which this section was taken, in a great number of the papillæ the capillaries had become ruptured, and an extravasation of blood had taken place into the papillæ. This was the only case in which such great dilatation of the blood-vessels was seen, though it is probably present in a considerable number of those cases in which excessive bleeding follows scraping the patch. Scraping such a patch as that from which the section drawn in Fig. 6 was taken, would be followed by much more bleeding than ordinarily occurs in psoriasis after this operation. The slight amount of additional scraping, sometimes necessary to produce bleeding in this disease, after removal of the whitish scales, can be seen by referring to Fig. 7. In this case only two rows of cells separated the whitish scales from the papilla beneath. Outside the blood-vessels, in the patch represented by Fig. 6; in those inter-Malpighian spaces where no rupture of the blood-vessels and extravasation of their contents occurred, but few outwandered blood-corpuscles were to be seen, and none whatever were present in the deep cuts.

When psoriasis punctata has lasted a certain length of time and continues to increase in size, it becomes a psoriasis guttata, and afterward a psoriasis nummularis. The eruption in psoriasis guttata does not differ from that in psoriasis nummularis, except in the extent of skin affected, and that the older the eruption the greater generally is the amount of cell-infiltration in the papillæ and cutis. A section of a patch of psoriasis nummularis will, therefore, give the height of the changes which occur in any of the later forms of a psoriasis eruption, as regards the Malpighian layer, and, knowing already the changes which occur in psoriasis punctata, and remembering that the transition from psoriasis punctata to psoriasis nummularis is a gradual one, including, in its march to become the latter, the form known as psoriasis guttata, and that the pathological condition in the latter form must therefore necessarily be simply an intermediate condition between the two other forms, I have considered it unnecessary to give a drawing of the changes which take place in this intermediate form, and I have therefore represented in the next wood-cut, Fig. 8, the condition present in a patch of psoriasis nummularis of a few weeks' standing, in which there was only an ordinary amount of cell-infiltration of the cutis present. The whitish scales are not drawn, having become separated from the rest of the section,

Fig. 8 × 300 diameters.



as already mentioned, during the preparation of the tissue. There was a large number of those scales present, as is generally the condition in this form of the eruption. In this figure is to be seen to what extent the hyperplasia of the Malpighian layer can occur in psoriasis. In the centre of the drawing is a Malpighian prolongation, cut probably almost through its centre. On each side of this large one are two small portions of similar prolongations. Still more externally are others which are cut much nearer the centre than the two near the central one. That the two small prolongations represent only sections from the upper margin of large prolongations was evident from the shape of the cells forming the cylindrical cells of the mucous layer. The large central prolongation is irregular in form, probably from the resistance offered by the underlying cutis to its extension downward. As in Fig. 2, the cells composing the lower part of the prolongations are smaller than those nearer the corneous layer. They arise, in my opinion, from the living matter composing the lowest layer of the rete Malpighii, and do not differ either in appearance, or arrangement, from the normal epithelial cells of this layer. The inter-Malpighian spaces contain, at this stage of the disease, a large number of emigrated white blood-corpuscles, some of which are more or less flattened from pressure of the connective-tissue fibres, but the majority of them are round. The accumulated emigrated cells, together with the accompanying transuded serum, separate the connective-tissue bundles and fibres from each other, and produce meshes of variable size in the connective tissue. They make in fact what has been called rarefied cutis tissue. In examining this tissue with a high power, it is found to consist of a meshwork, with the connective tissue forming the walls of the spaces. In the spaces themselves lie the emigrated round cells. Neumann regards this structure as newly-formed tissue, produced from the emigrated cells; but I cannot regard it in any other light than as a rarefied cutis tissue, containing white blood-corpuscles and serum. The complete removal of the two latter in the stage of disappearance by the lymphatics, leaving the part without any round cells, seems to me, when taken in conjunction with the microscopical appearance, to be conclusive.

The blood-vessels in the inter-Malpighian spaces are all dilated, and their walls so changed that their limits are no longer easily recognized by microscopical examination. Sometimes the blood-vessels are much bent and twisted, and at other times they pass to the apex in almost as straight a line as, or even more direct than, in health. The reason so many round cells are present in the inter-Malpighian spaces is because this part is rich in blood-vessels, and the cell infiltration in psoriasis is confined to a small region around the blood-vessels. The reason the cells are arranged more or less perpendicularly in the whole of the inter-Malpighian space, except at the apex; where they lie more horizontally, is because their direction here, as in some other parts of the body is influenced by the direction in which the connective-tissue fibres of the part run.

A superficial examination of the inter-Malpighian spaces in this drawing would lead one to believe that there is great hypertrophy of the papillæ present, and but little hyperplasia of the Malpighian layer. The cause of this apparently greatly enlarged space, on the left side of Fig. 8, is, as already stated, because the prolongation has been cut in this section near its base, whereas, had it been cut through its centre, it would have reached as far downward as the centre prolongation, and consequently, instead of a structure of connective tissue, round cells and enlarged blood-vessels, the space would have been principally occupied by a portion of the rete Malpighii. The same explanation is true of the right side of the figure. The real condition and explanation can only be known by remembering that the prolongations downward are more or less cone-shaped, with the apex pointing downward, and that in a section the knife can pass through any part of the cones, or even miss some of them entirely. This has almost occurred in the section drawn in Fig. 8. If the reader will bear this fact in mind, he will easily perceive that here, as in the early stage, there is no great hypertrophy of the papillæ.

The blood-vessels in the deeper layers of the cutis are dilated, and the surrounding tissue infiltrated with round cells and serum. This cell infiltration does not become general throughout the cutis, but remains limited to the neighborhood of the blood-vessels. If the section given in Fig. 8 had included the course of the blood-vessels from the rete Malpighii to the deeper cutis, we would have found the tissue surrounding these blood-vessels filled with round cells. At *b* this perivascular infiltration is well marked. The blood-vessel at *a* is only a branch of the principal vessel which ran horizontally toward the right side of the figure, and was accompanied by the cell infiltration to be seen in that part. An adjoining section would show the blood-vessel. This cell infiltration produced a meshwork which is not well shown by the woodcut, either here or in the inter-Malpighian spaces, as the engraver did not follow closely the original drawing.

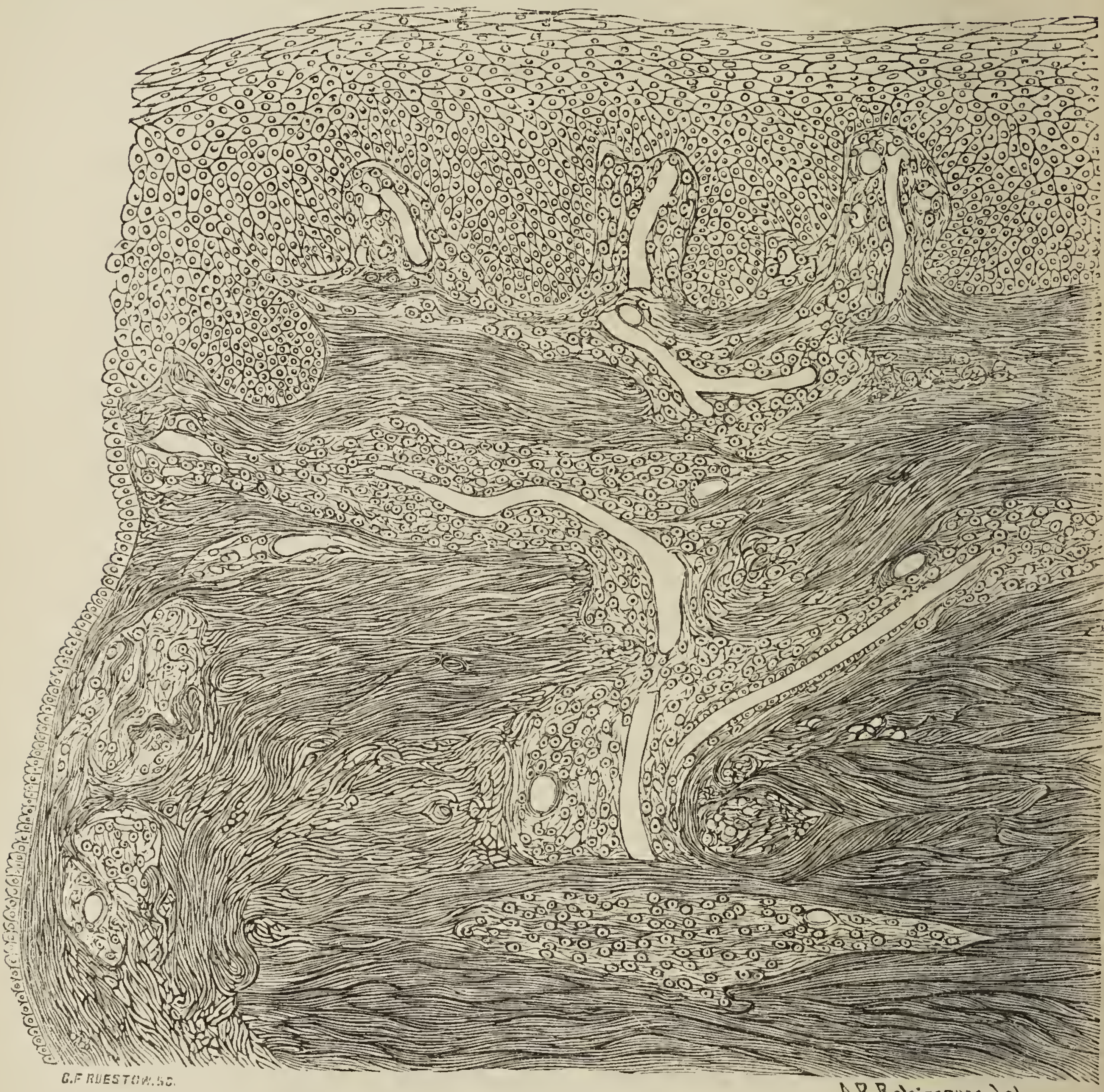
The sebaceous and sweat glands are normal in this stage also.

The hair-follicles are affected in the same manner as in the early stage, only that the hyperplasia is more marked.

Such is the condition present in a patch of psoriasis of some duration, three or four weeks perhaps; and the condition during the period between the young papule and this stage is one of gradual transition from the one to the other, and need not be described further here than to state that, commencing from the condition known as psoriasis punctata, the rete cells continue to be excessively produced, and to spread farther inward, that the blood-vessels continue to dilate, and the surrounding cell infiltration and œdema to increase in the inter-Malpighian spaces, and to extend further and further along the blood-vessels into the deeper cutis, until the condition is arrived at shown in Fig. 8. The amount of blood-vessel dilatation and cell infiltration always varies in different cases, sometimes not being so great, or extending so deeply into the cutis, and at other times being much greater and more extensive than represented in Fig. 8. These varying conditions depend considerably upon the state of the patient's system and upon external influences which can affect the inflammatory processes of the disease.

After a time the disease frequently becomes chronic, the hyperplastic process less active, and fewer whitish scales are formed upon the surface. The eruption spreads but very little, if any, and the patch is accompanied with more or less marked infiltration of the underlying cutis. In Fig. 9, I

Fig. 9 × 300 diameters.

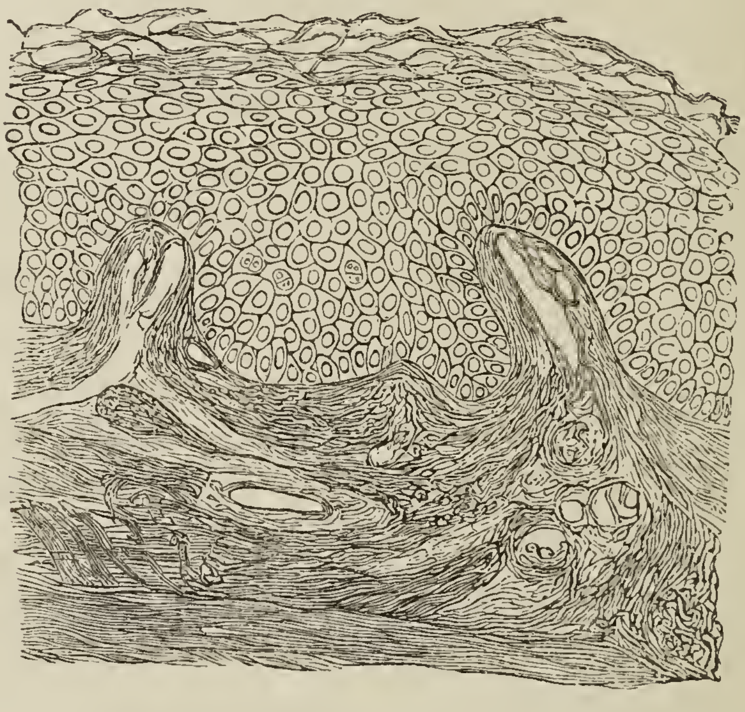


have drawn a section from such a patch. The hyperplasia of the Malpighian layer is easily recognized, as well as the absence of special hypertrophy of the papillæ. The same dilatation of the blood-vessels is present, and also similar perivascular accumulation of round cells and formation of the connective tissue into a meshwork. Wherever blood-vessels are present, there, and only there, does a connective-tissue infiltration occur.

In this patch, however, from the long duration of the process, the dilatation and cell infiltration have extended still deeper into the cutis than in Fig. 8. Fig. 9 is an excellent illustration of the condition of the skin in a chronic patch of psoriasis associated with an ordinary amount of infiltration. To the left of the section are seated a hair-follicle and sebaceous gland, the latter nearer the drawing, as can be seen by the cylindrical cells forming the margin of the figure. On this side of the figure are seen the blood-vessels which run perpendicularly alongside these structures, and the accompanying cell infiltration. It is to be noted that, apart from the immediate neighborhood of the blood-vessels, there is no cell infiltration into the connective tissue. This drawing can be studied with profit by those who believe in a close relation between psoriasis and eczema (compare a drawing of chronic eczema by Rindfleisch with Fig. 9, and note the difference). In no stage of uncomplicated psoriasis are emigrated round cells present in an abnormal quantity in the Malpighian layer. All my observations appear to me to show that psoriasis is not an inflammatory disease of the papillæ, or of the upper part of the corium.

During the period of disappearance of the disease there is a gradual return to the normal condition until the hyperplasia, dilatation of the blood-vessels, and all infiltration have completely disappeared. The Malpighian prolongations become smaller and smaller until the layer attains its normal size; the blood-vessels gradually return to their normal diameter, and the round cells and serous exudation return to their normal channels. Of these pathological processes, the cell infiltration and œdema generally disappear first, and the hyperplasia last. Where previously the infiltrated cells were crowded together, and but little connective tissue was to be seen, the latter appears more and more to view, until, when all the cells have disappeared the tissue simply seems clearer, and the fibres further apart than in the normal state. In Fig. 10 is drawn a section from a psoriasis guttata patch, removed when the affected spot seemed to have almost returned to a normal condition, i. e., there was but slight elevation above the general surface, and only a few scales were present. Microscopical examination showed that the Malpighian layer had not returned to its normal size, and that the blood-vessels

FIG. 10 × 300 diameters.



were still dilated, though not a single round cell was to be found outside the latter. The infiltrated connective tissue had also not attained its normal density. The skin, which is the seat of a psoriasis patch, is not in a normal condition when all elevation above the general surface has disappeared, and no whitish scales are formed upon its surface, as at this stage all the results of the processes engaged in psoriasis, except perhaps one, viz., the cell infiltration, still exist to a certain degree.

In those cases in which the eruption is only a punctata, recovery is much more rapid, as there is not that dilatation of blood-vessels, or cell infiltration, which is present in the other forms of the disease. The continuance of the hyperplasia of the Malpighian layer after disappearance of all elevation of the patch above the general surface, as well as the presence of hyperplasia beyond the margin of a spreading patch (as between the two papules previously described) where no elevation is present, shows that the elevation of a patch of psoriasis depends not so much upon the hyperplasia of the Malpighian layer as upon the whitish scales, and upon the changes which occur in the papillæ and cutis, i. e., upon the hyperæmia, cell infiltration, and serum transudation.

In a portion of skin examined three weeks after disappearance of all elevation, when only a pigmentation of the skin remained to show that the spot had been the seat of an eruption, the Malpighian layer was found to have returned to its normal form, but the hair-follicles were still three or four times their normal size. The papillæ and cutis and blood-vessels were apparently normal. The cause of the pigmentation was the presence of an excessive amount of pigment in the normal structures for this substance. An occasional pigment granule was to be seen along the course of a blood-vessel, but they were not present in sufficient quantity to be appreciable to the naked eye. We thus learn that, even three weeks after apparent disappearance of the eruption, all the structures composing the skin are not again in a normal condition. The hyperplastic process, however, has probably ceased, though the results of the process have not disappeared, as it requires a longer period for the excessively-produced cells to reach the surface, and be cast off from the body.

In one case where, instead of pigmented spots, white spots remained several weeks after disappearance of elevation and scaling, I found but little pigment in the rete cells, and an increase in the elastic fibres of the cutis. The blood-vessels were also interfered with, so that circulation had not been established when I excised the portion of skin.

It was my intention to discuss and protest against the view held by many dermatologists, that there is a close relation existing between psoriasis and ezcema, but the upholders of this view have been so completely answered lately by Dr. J. C. White, of Boston, that I will, at present, only say that the pathological histology of psoriasis, as given in this paper, clearly demonstrates that there is no histological relation between two diseases.

To discuss the question of the local or constitutional nature of psoriasis, I regard as only a waste of time, as the term constitutional, as at present used, has such an unlimited meaning. If, however, we restrict the term and give it the same meaning as general (as suggested by Dr. Moxon, and, as I think, properly), then psoriasis is a local disease, that is, it is a hyperplasia of the Malpighian layer of the skin, and, as has been lately shown by Köbner and Wutzdorff, can be produced by local irritation, provided the tissue is predisposed to it. That the disease is generally inherited is not proof that it is a general disease of the system, since such local affections as malformations and fatty and cartilaginous tumors are also inherited. The disease is local at the commencement, always remains local, and never affects the general system. This subject might be discussed at great length, but, as I have already said, it is unnecessary. Pathologists in general recognize its local nature, but their view is not as yet accepted by all clinical observers.

All the drawings have been made by myself by means of a camera lucida, and can be relied upon as being nearly exact representations of the different sections.

In conclusion I have to express my thanks to Dr. M. H. Henry, Surgeon-in-chief to the State Emigrant Hospitals on Ward's Island, for a large amount of living material obtained from patients under his care; also to the artist C. F. Ruestow for his efforts to make the woodcuts resemble as nearly as possible the original drawings.

Art. II.—*Cardiographic and Sphygmographic Studies.* By A. T. Keyt, M. D., Cincinnati, Ohio.

III. The Human Heart's Revolution, and the Relation to it and to each other of Ventricular Systole and Diastole. Brilliant as were the results achieved by Chauveau and Marey in their celebrated experimentation on the horse, there can be little doubt that these illustrious experimenters would have obtained even finer and truer representations of the events of a cardiac revolution, had they employed a proper apparatus, supplied with a light liquid, instead of yielding, oscillating air, for transmitting the movements from the heart to the tracing levers. The superiority of a practically incompressible to an easily compressible medium, for the purpose named, at once commends itself to the judgment.

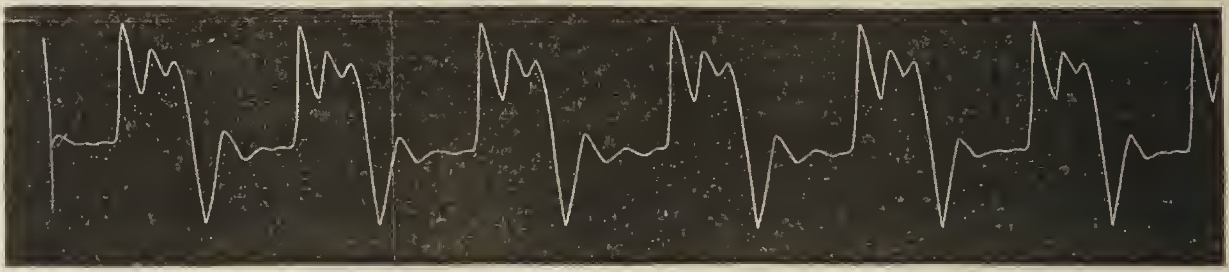
Our method suitably modified is well adapted to experimentation on the lower animals and on the *schema;* and, when it comes to be applied to such purposes, it will be found competent to afford very excellent results. But at present we are concerned with the method as applied directly to man. Questions in the finer physiology of the human pulsations must be solved from the data of graphic delineations of the action of the human heart and arteries. Obviously, the required tracings can only be procured from the surface over these organs, yet tracings of such excellence are so easily procurable that we confidently utilize them as the basis of our facts and deductions.

A good cardiogram taken from a healthy person is a true representation of the heart's pulsations, and shows with distinctness and precision the limits of ventricular systole and diastole. We may here repeat that the basal point of the main ascending line marks the beginning of contraction, and the highest point of the main descending line marks the beginning of relaxation. Thus, by the aid of these representative points, in connection with the points of a chronogram simultaneously traced, we are enabled in any case to measure with precision the duration of a pulsation, and that of its systole and diastole.

In the number of this Journal for July, 1877, are eight cardiograms, each embracing six to seven full pulsations, taken from a healthy man, aged thirty-two years, with chronograms in fifths of a second written at the same time. The heart, tested by palpation, auscultation, the cardiometer, and cardiograph, was found normal in force, sounds, amplitude, and rhythm ; and, by comparison with many others, it was found to fairly represent in its movements the average of healthy human cardiac pulsations. The tracings we regard as typical and do not hesitate to accept and commend them as showing the true systolic and diastolic relationships.

Four other cardiac tracings—two each from K and L—are in the number of this Journal for February, 1878. These, though less finely delineated in the smaller waves than those just named, show very distinctly the beginning and end of ventricular systole.

The table below is a collation of facts derived from measurements on the chronograms of pulsations from the above-named cardiograms. Of the eight, two consecutive pulsations from each were measured. Of the K and L cardiagrams, one pulsation from each was measured. In Nos. 1, 2, 3, 5, 6, and 8, the measurements are from contiguous pulsations on either side of line B; in Nos. 4 and 7 they are from consecutive pulsations following the line B; and in Nos. 16 and 23, from single pulsations following the line B on either side of the reversal lines.



Normal Human Cardiogram, 72 Pulsations per Minute.

Table showing, in decimals of a second, measurements of the normal human heart's

		Systole,	Diastole,	Pulsation,	and Frequency per Minute.
No. 1	1st pulsation.......	.347	.453	.800	75
	2d "	.332	.490	.822	73—
No. 2	1st pulsation.......	.312	.453	.765	78.4
	2d "	.312	.453	.765	78.4
No. 3	1st pulsation.......	.336	.443	.779	77+
	2d "	.313	.480	.793	75.6
No. 4	1st pulsation.......	.328	.518	.846	71—
	2d "	.314	.514	.828	72.4
No. 5	1st pulsation.......	.322	.487	.809	74+
	2d "	.331	.514	.845	71
No. 6	1st pulsation.......	.309	.505	.814	73.7
	2d "	.329	.538	.867	69
No. 7	1st pulsation.......	.344	.454	.798	75+
	2d "	.339	.481	.820	73+
No. 8	1st pulsation.......	.324	.447	.771	77.8
	2d "	.331	.434	.765	78.4
Average of the 16 pulsations.		.3264	.4786	.805	74.5
K. No. 16	1st pulsation...	.336	.400	.736	81.5
	2d " ...	.315	.394	.709	84.6
L. No. 23	1st pulsation...	.316	.595	.911	65.8
	2d " ...	.343	.542	.885	67.8
Average of the 4 pulsations...		.3275	.4827	.810	74.9
Average of the 20 pulsations.		.3269	.4806	.8075	74.7

The data of the table indicate the truth of the following propositions :

1. In the normal heart the rhythm of its movements is continually changing, and the change pertains to the duration of its entire revolution, and to that of both systole and diastole.

2. The duration of diastole changes in much greater degree than that of systole.

3. A longer systole may go with a shorter pulsation; and a shorter systole with a longer pulsation.

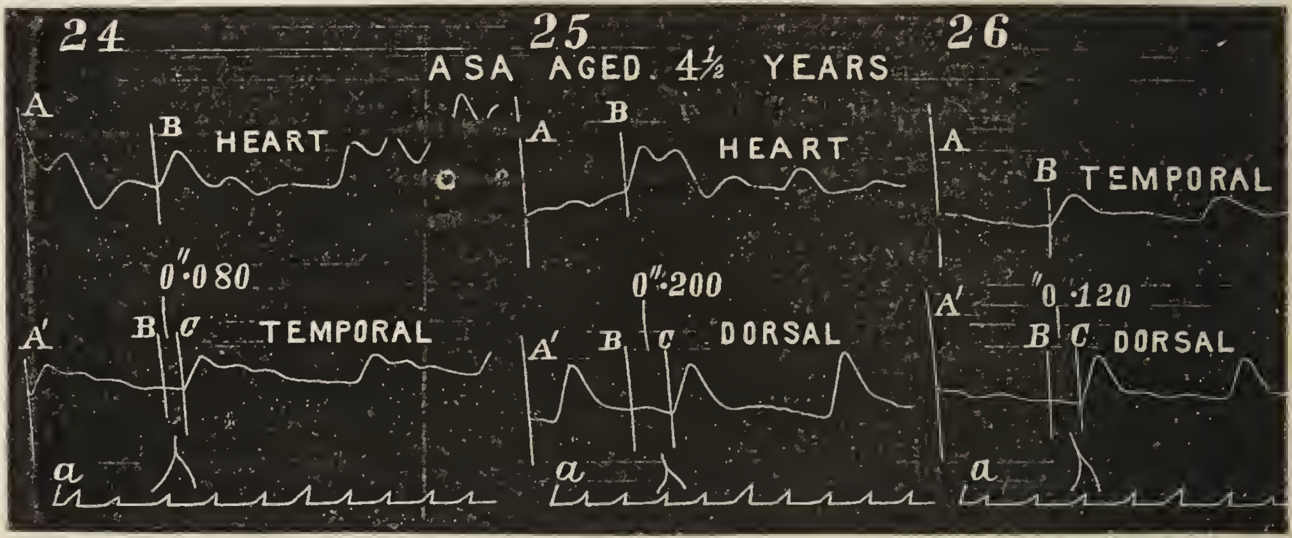
4. Invariably a longer diastole goes with a longer pulsation, and a shorter diastole with a shorter pulsation.

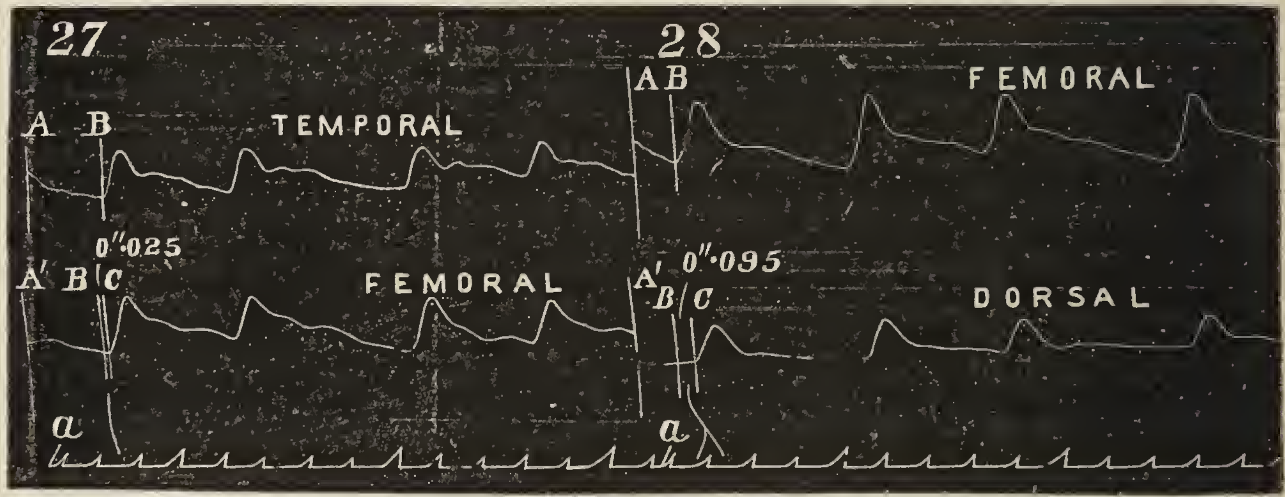
5. In the normal heart, beating at about 75 to the minute, the average ratio of systole to diastole is very nearly as two to three.

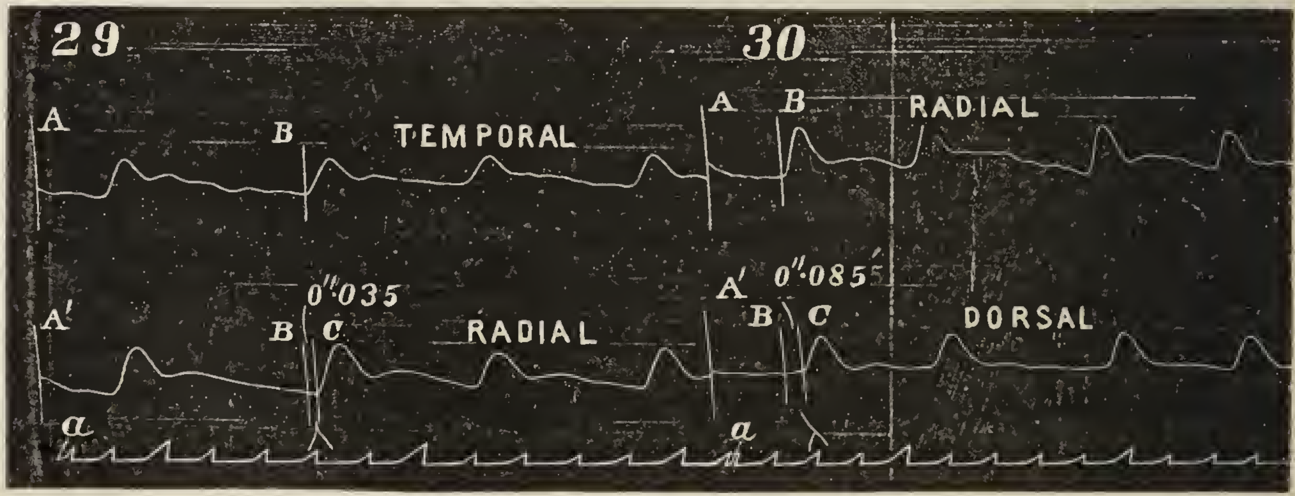
IV. THE VELOCITY OF THE PULSE-WAVE AND DURATION OF THE VENTRICULAR CAROTID AND VENTRICULAR PRESPHYGMIC INTERVAL IN YOUNG CHILDREN.—In a late communication (see this JOURNAL, February, 1878), I presented the results of my investigations on the velocity of the pulse-wave in adult men. By the same method and with equal care, I have made, also, a considerable number of observations on the velocity of the pulse-wave in young children; and the results of these are fairly represented in the subjoined series of tracings procured from a healthy little boy aged 4½ years. The tracings were all taken at one sitting; and, although defects of form are plainly visible, they are perfect as regards the basal points of ascent and representation of the time-differences which alone concern the immediate investigation. Finer-formed tracings could have been obtained by repeating the experiments, and multiplying the sittings, but this would have consumed unnecessary time and enforced upon the little subject undesirable restraint. The irregularity of rhythm is not greater than that which is often observed in the pulse of young children.

The temporal in front of the ear was chosen instead of the carotid, because the former answered the purpose very nearly as well, and the latter could not be subjected to sufficient pressure without annoyance to the child.

The space between the lines *B* and *C*, as heretofore, shows the time-difference, and the figures express the same in decimals of a second, as computed from the chronogram marking fifths of a second between the points.







Below is a table of the child's measurements and data, together with a tabular restatement of *L*'s and *K*'s data for the purpose of more ready comparison.

ASA'S MEASUREMENTS.

Heart to dorsal, 31 inches + 4 inches for aortic arch = 35 inches.
Heart to femoral, 11 " + 4 " " = 15 "
Heart to radial.................................... 18 "
Heart to temporal.................................. 9 "

Asa's Data.	Time.	Velocity per sec.
Temporal-dorsal distance 35 — 9 = 26 inches......	.120 sec.	216.6
Temporal-femoral " 15 — 9 = 6 "	.025 "	240
Femoral-dorsal " 20 "	.095 "	210
Temporal-radial " 18 — 9 = 9 "	.035 "	257
Radial-dorsal " 17 "	.085 "	
Heart-temporal " 9 "	.080 "	
Heart-dorsal " 35 "	.200 "	
Computed presphygmic interval, .080 — .035 = .045		

L'S DATA.

	Distance.	Time.	Velocity per sec.
Carotid-post-tibial..................	51 inches.	.166 sec.	306 inches.
Carotid-femoral....................	18 "	.0909 "	198 "
Femoral-post-tibial.................	33 "	.0714 "	462 "
Carotid-radial......................	23 "	.0888 "	259 "
Radial-post-tibial..................	..	.0625 "	
Heart-carotid......................	7 "	.1000 "	
Presphygmic interval..............	..	.0647 "	

K'S DATA.

	Distance.	Time.	Velocity per sec.
Carotid-dorsal......................	52 inches.	.125 sec.	416 inches.
Carotid-femoral....................	17 "	.050 "	340 "
Femoral-dorsal.....................	35 "	.075 "	466 "
Carotid-radial......................	23 "	.0714 "	322 "
Radial-dorsal.......................	..	.0536 "	
Heart-carotid.......................	7 "	.077 "	
Presphygmic interval..............	..	.0564 "	

Evidently by our method, the wider the space *B C*, and the wider the distance between the points under experiment, the closer may be the estimated time-differences and velocities; while the significance of small errors in the estimates increases as these spaces diminish. Accordingly in Asa's case, while the estimated time-difference and velocity of the pulse-wave between the temporal and dorsal cannot err materially, the estimates of the divisions may err so as to mar in some degree the figures of the apportionments. However, the admissible errors by no possible just construction can be made sufficient to annul the marked contrast in the apportionments as shown between the child and adult.

A review and comparison of the data as set forth demonstrate the following propositions:

1. The mean velocity of the pulse-wave in the arterial tree is much slower in young children than in adults.

2. In such comparison, the greatest diversity is in the lower extremities, where the velocity of the pulse-wave in young children may not exceed one-half that in adults.

3. While in adults the velocity of the pulse-wave is much faster in the lower extremities than in the trunk and upper extremities, in young children such difference does not obtain.

Also the data indicate almost to a demonstration that proposition 3 might be stated thus: *While in adults the velocity of the pulse-wave is much faster in the lower extremities than in the trunk and upper extremities, in young children the order may be reversed, though with a nearer approach to equality between the lower and upper divisions.*

Respecting the comparison of velocities in the trunk and upper extremity, in young children, as shown by Asa's figures, these are so close as to preclude a positive conclusion as to which preponderates. The same is the case in *K*, while in *L* a notable preponderance is shown in favor of the upper extremity. In the trunk, it is shown that Asa's velocity is greater than *L*'s, and much less than *K*'s. In the upper extremity, it is shown that Asa's velocity is about equal to *L*'s, and considerably less than *K*'s.

From a consideration of all the showings, the inference seems just, as a general proposition, *that the mean velocity of the pulse-wave increases with increase of age.*

In young children, closely associated with the pulse-wave velocity are: (*a*) the time-difference between the heart and a near available artery, and (*b*) the duration of the ventricular presphygmic interval. My investigations have included, also, attention to these points. No. 24 of the series gives a fair representation of the results as to the entire difference in time between the cardiac and temporal pulsations. The showing is plain, and the measurement is placed at .08 of a second. The presphygmic interval is arrived at by deducting the transit time, as computed, on the basis of the wave-velocity in the upper extremity, at .035 of a second, from the entire time-difference. Thus: .080 — .035 = .045 of a second.

So from our data we are enabled to formulate two interesting facts:

1. *The time-difference between the beat of the heart and the carotid pulse is very nearly the same in young children as in adults.*

2. *The interval between the contraction of the ventricle and expansion of the artery is notably less in young children than in adults.*

The reason of the phenomena we are becoming acquainted with will be an interesting study; but at present we are concerned with the immediate facts, well knowing that the explanations will be easier in proportion as the facts are more complete.

ART. III.—*A Method of Suspension by Adhesive Plaster in the Plaster-of-Paris Treatment of Disease of the Spine. Independent Suspension of the Head.* By JOHN J. REID, M. D., Visiting Physician to Charity Hospital.

THE method of extension here proposed is offered as an advance on that usually practised, and possesses important advantages. It requires no skill other than that needed in ordinary surgical procedure, and no apparatus beyond the resources of any practitioner.

It does away with the necessity of the air-mattress, inasmuch as it permits of extension, sufficiently prolonged to allow the plaster of Paris to become hard. The second feature, that of independent suspension of the head, commends itself as a safe method of practice in cases of disease of the cervical or upper dorsal vertebræ, and was suggested by records of laceration of the spinal cord from forcible and unguarded extension. This might readily be anticipated when the pathological condition of the affected vertebræ is considered.

The method was introduced for the more satisfactory treatment of spinal disease in patients at the New York Foundling Asylum, and the results attained have been such as to specially indicate it in children and young persons.

The steps of the method are: Application of strips of adhesive plaster (Fig. 1); use of roller of soft gauze to bind the adhesive plaster (Fig. 2); suspension (Fig. 4); application of plaster-of-Paris bandage; removal of adhesive plaster (Fig. 3); suspension of the head (Fig. 4).

Fig. 1.

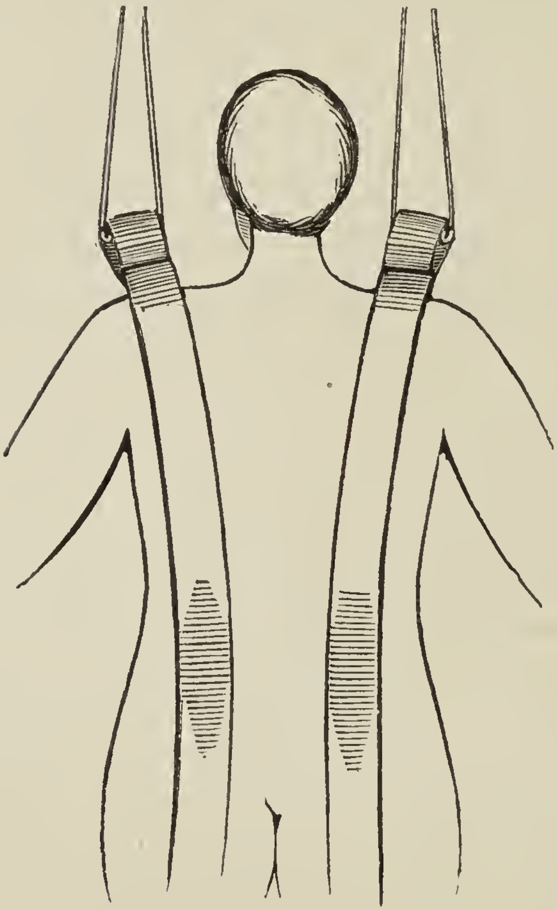
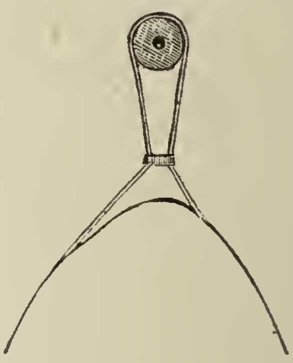


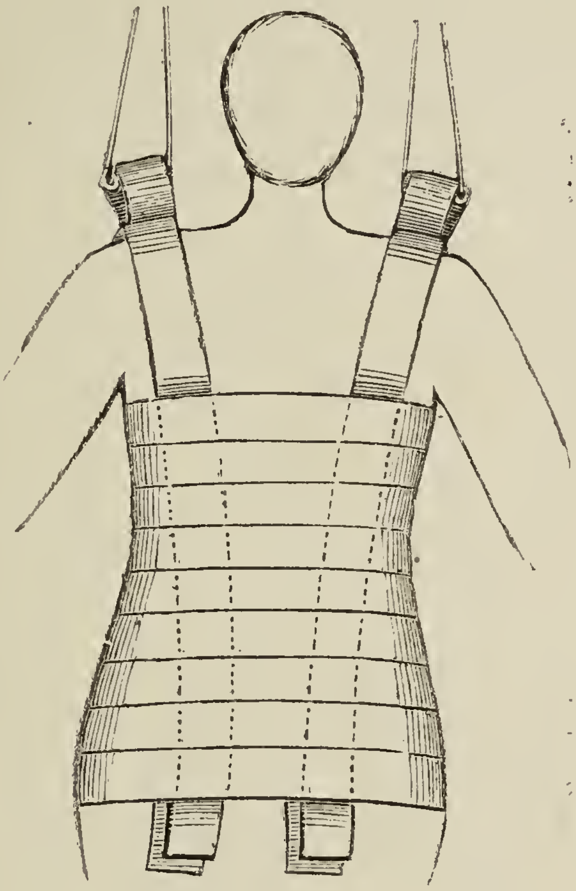
Fig. 1 *a*.



Strips of adhesive plaster, two and a half inches in width, are applied along the back, across the shoulder, and down the body anteriorly, leaving a loop for applying suspension. Over the adhesive plaster, and corresponding with it, is placed a piece of roller bandage. This becomes of use later on, when it is necessary to remove the adhesive plaster. Both of these are shown in Fig. 1. In the loop is a piece of perforated wood to protect the adhesive plaster, and at the base of the loop (Fig. 1 *a*) is a clamp to bind the adhesive strip to the upper part of the trunk, and thus obtain a greater purchase.

The next step is important, as it does away with the knitted shirt, and leaves in its place an envelope of soft gauze applied in the form of a bandage. The reason for the use of the gauze specially exists in the necessity of a roller to bind the adhesive plaster to the skin; and, after the plaster of Paris is applied, it incorporates with it and forms a perfectly fitting shirt.

FIG. 2.



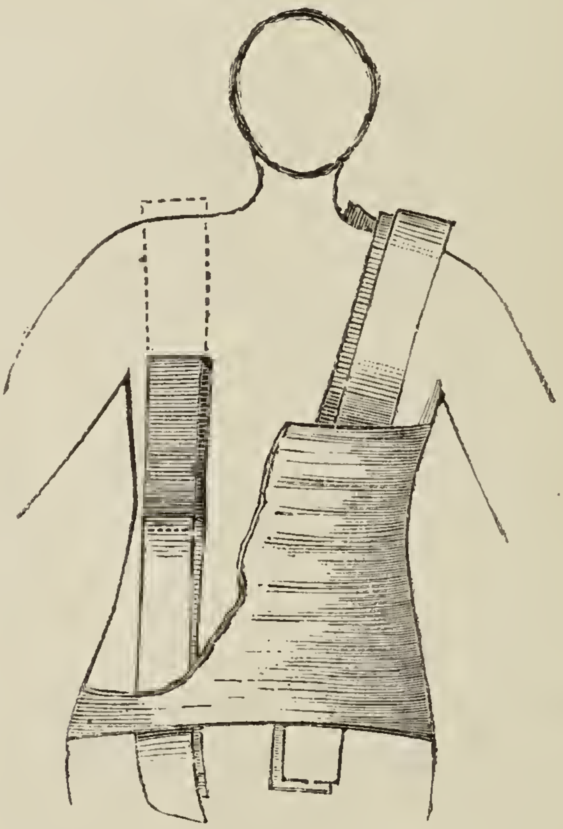
The roller is commenced from above and carried downward. After the patient is suspended, it usually requires to be readjusted about the lower part of the body, to conform with the straightening which takes place from suspension.

In regard to the means of suspension, it consists of either a hook in the ceiling, or some fixed point above. To this is connected a pulley. Passing through the pulley is a rope which is attached to an iron cross-bar (Fig. 4). From either end of the cross-bar cords pass down and through the perforated wood in the loops of adhesive plaster. The rope has on it an ordinary clutch (Fig. 4), which readily secures it at any point.

In applying the plaster-of-Paris jacket, the ordinary plaster-of-Paris roller is employed. It consists of a layer of gauze spread with plaster of Paris, and thoroughly saturated before being bound around the body.

When the plaster has hardened, the patient is lowered down. There then remains one of two things to be done, either to remove the adhesive strips or allow them to remain for daily suspension. If it is desired to remove the adhesive plaster, the shoulder loops are cut (Fig. 3), and the free end of the adhesive plaster is pinned to the end of the superimposed bandage. Traction made upon the bandage at the lower border of the plaster-jacket peels off the adhesive plaster, as will be readily understood by examining the engraving.

Fig. 3.



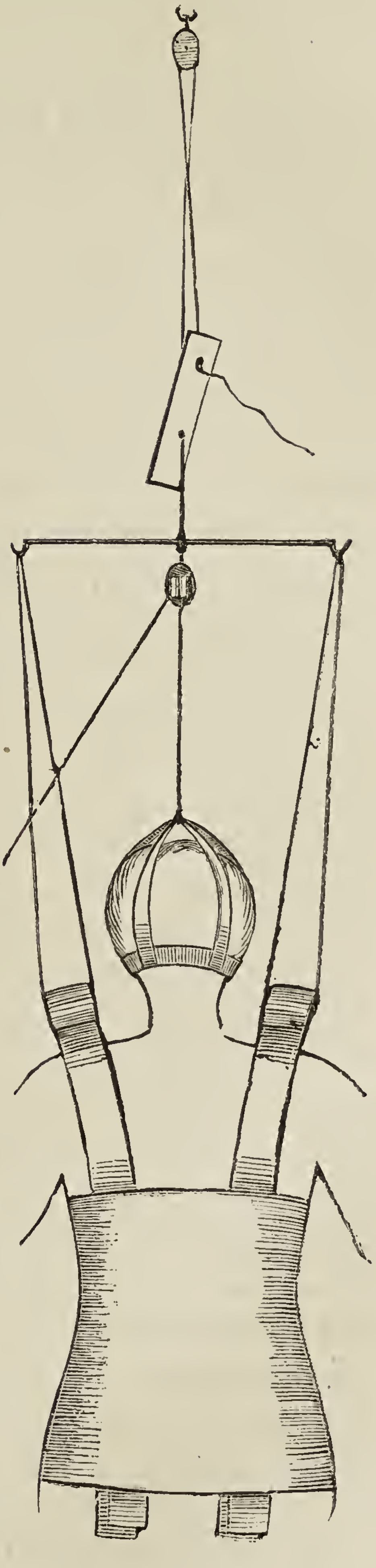
In cases of spinal disease of children, it is difficult, if not impossible, to teach them to practice daily extension, and to overcome this the author has taken advantage of the means of suspension by adhesive plaster to make periodic extension without being thwarted by the caprice of the patient.

Instead of ordinary adhesive plaster, a variety known as rubber adhesive is used. The advantage possessed by this latter consists in its increased adhesive properties without irritant action on the skin; and, instead of removing it, it is retained in position. Every day the little patient can be suspended and kept that way for an hour at a time without inconvenience.

Suspension of the head.—After suspension of the body has been accomplished, the usual sling apparatus for supporting the head is applied, and to it is attached a cord which passes through a pulley connected with the cross-bar, as seen in Fig. 4. By this means the requisite amount of extension can be applied to the neck. In cases of lateral curvature there can be but little danger from unguarded extension made upon the head; but, in caries of the cervical and upper dorsal vertebræ, death has taken place from laceration of the spinal cord caused by forcible extension. For this reason it was deemed safest to first suspend the body, and then make as much traction on the head as the surgeon may deem proper.

When apparatus is used which acts on the body and head at the same time, it is obvious that the danger to weakened vertebræ becomes unavoidable and of serious consequence. The present method obviates this difficulty, and reduces, as far as possible, the risk incurred by suspension. It is found, in practice, that the effect produced by the suspension of the body by adhesive plaster is similar to that obtained by suspension from the axillæ, and this can readily be proved by examining the con-

Fig. 4.



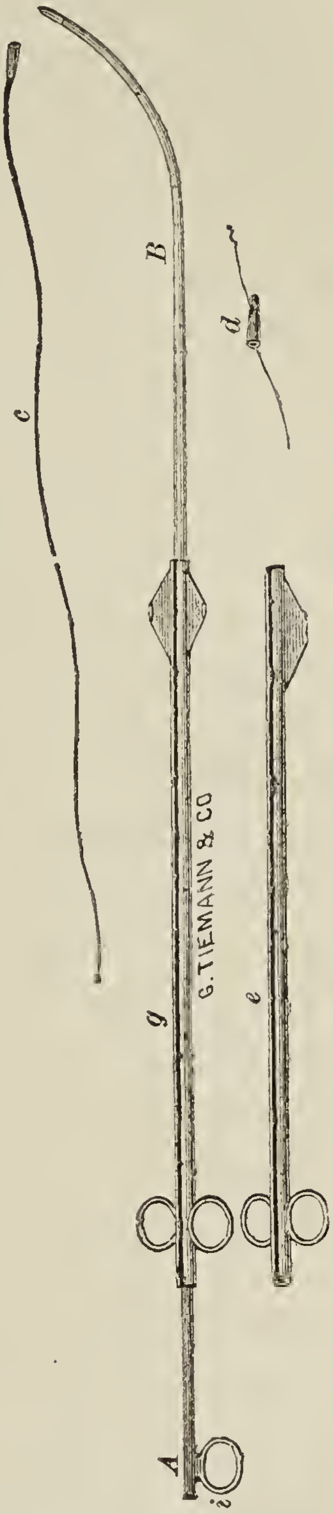
dition of the trunk when the weight of the body is lifted from the feet.

Art. IV.—*A New Rotating Urethrotome.* By John A. Pritchett, M. D., Hayneville, Alabama.

Feeling that the unnecessary multiplication of instruments is an unmixed evil, it has been after much hesitation that I have ventured to add to the already too long list of mechanical appliances for the division of urethral strictures. Among the cutting instruments for this purpose, the urethrotomes of M. Maisonneuve and Prof. Otis stand preëminent, their possession being absolutely indispensable to the surgeon who would undertake the treatment of organic stricture of the male urethra. But each instrument has its special applications and its special disadvantages; that of M. Maisonneuve being best adapted to very tight strictures, while the dilating urethrotome of Prof. Otis is peculiarly fitted for operating on strictures of large calibre. The objection to the Maisonneuve is that it does not give sufficient room after the operation, merely nicking the stricture at one point of its circumference, so that, even after using the largest blade in use, it is only possible to introduce a number nine or ten English bougie or catheter, and the stricture quickly recontracts to nearly or quite its original size unless constantly kept open by the regular introduction of steel sounds. Prof. Otis's instrument, on the other hand, is entirely too large to pass very tight strictures without a previous course of gradual or continuous dilatation, which is always painful, and by the consequent irritation well calculated to give rise to rigors and urethral fever. In common with the Maisonneuve, it possesses the disadvantage of cutting the stricture at one point only of its circumference. To obviate these difficulties and to combine the small size of the one with the great cutting capacity of the other of the two instruments in question, I have had constructed the instrument figured and described below.

It may be called a modification of Maisonneuve's, and consists of the following parts: First, we have a plain cylindrical rod or staff, fifteen inches long, two millimetres in diameter, and with the short curve of Bumstead. The external extremity has attached on its under surface a ring to serve as a handle, while the internal extremity terminates in a screw for the attachment of filiforms. A tunneled screw-head (Gouley's attachment) is also provided to screw on for using the finest whalebone guides. Next, and in this consists the peculiarity of the instrument, we have three tubes, each seven inches long, and fitting the rod closely, and with a slit down its entire length so as to pass the ring-handle of the staff. At the external extremity of each tube are attached laterally two rings for handles; while each internal extremity is beveled so as to pass strictures more readily. One tube carries at its internal extremity, attached superiorly, a triangular, probe-pointed blade, nine millimetres in size; a second tube carries a similar blade, seven millimetres in size, also attached superiorly; while the third tube carries two similar blades, each four millimetres in size, attached laterally.

The staff is made so long (fifteen inches) in order that the entire tube may pass the ring-handle before the blade enters the meatus. Of course, it may be made with any curve the surgeon may fancy.



A B, staff with (*g*) double blade in position; *c*, filiform attachment; *d*, tunneled screw-head (Gouley's attachment) for using whalebone guides; *e*, tube with single blade, showing slit down tube for passing handle (*i*) of staff.

To illustrate the method of using the instrument, suppose a patient to present with the symptoms of stricture. We first determine the natural calibre of his urethra, either by the urethrometer or by measuring the circumference of the penis after the rule given by Otis. If the meatus will not admit the full-sized bulbous explorer (*bougie à boule*), we split it until it will, when we pass it in and examine for strictures. If it fails to pass any of these, we introduce successively smaller numbers until we determine the calibre and position of the strictures. We then proceed to operate by passing the staff down through the strictures, either unaided or by the help of the filiform or whalebone guide. And just here, in my opinion, is one of the most important points in performing internal urethrotomy, namely, to introduce the staff with as little trouble and manipulation as possible. If practicable, this part of the operation should be entirely bloodless. All the cases in which I have seen rigors or urethral fever were those in which considerable manipulation was expended in introducing instruments, or in which a retained catheter or *sonde à demeure* was left in after the operation. Hence it is best, if the unaided staff refuses to pass at the first trial, to resort at once to the assistance of filiforms or whalebone guides. For the surgeon should ever bear in mind that a small steel bougie is always a dangerous instrument unless used with the utmost gentleness and tact, to say nothing of the danger of creating a false passage; any long-continued manipulation with it is almost certain to be followed by such reflex troubles as rigors and urethral fever. The staff once passed well into the bladder, by depressing the handle, there need be no further trouble in completing the operation. One of the blades is then slid down the staff, cutting the roof of the urethra where strictured; after passing beyond the stricture into an unnarrowed portion of the canal, the tube is rotated upon the rod, as an axis, until a half-revolution is effected, when it is withdrawn, cutting the floor of the urethra at the constriction. If this is not deemed sufficient, the blade may be again introduced, and the strictures cut to either or both sides or intermediately in as many places as desired. By using the double blade we may make two incisions at each introduction and withdrawal of the knife. In selecting the blade to be used, we must be guided by the natural size of the urethra operated on; using the seven millimetre blade on the smallest urethras, the double blade on the largest, and the nine millimetre blade on those of intermediate size. In regard to the number of incisions, I think it best to cut until the full-sized Otis's sound will pass with freedom, as in this way the patient will be saved much pain in the subsequent introduction of the sound. After the operation it is important to avoid instrumentations as much as possible. I deem it best, as a rule, neither to leave in a catheter nor to draw off the urine of the patient, but to allow him to pass it himself, whenever he desires, either sitting in a tub of hot water, or without any precautions against rigors. And I may add that I would not give quinine and opiates unless fevera ctually occurred. Nor should the sound be passed too frequently; every second day for a few times, and then at gradually increasing intervals, will generally be found sufficient.

Whether or not it is ever safe to entirely discontinue the use of the sound, my experience with the instrument has been neither sufficiently extensive nor prolonged to determine. As is well known, Prof. Otis claims the possibility of effecting a radical cure of urethral stricture by the use of his dilating urethrotome. Whether such a claim can be established for the rotating instrument is more than I can at present assert; but certain I am that the immediate results effected by it are fully as good as any I have ever obtained from Otis's instrument. We can, at least, by its use, obtain the benefit of a number of "cicatricial splices."

The advantages of the instrument may be summarized as follows:

1. Great simplicity in construction, rendering it easily kept in repair.

2. The small size of the staff, making it possible, with the aid of the filiform and whalebone guides, to pass almost any but entirely impermeable strictures.

3. The possibility of cutting the stricture with equal facility at any point in its circumference, or at any number of such points.

4. We can with it easily divide the stricture up to the natural capacity of the healthy urethra, a result due in great measure to the large size of the blades. By Otis's instrument this same result is obtained by a single incision while the stricture is on the stretch. But the pain of the dilatation I have generally found very great, much greater than that

caused by repeating the incisions, while the hæmorrhage is not perceptibly increased by the latter procedure.

5. And, lastly, I may add, as no unimportant advantage, the readiness with which the instrument may be cleaned after operation.

The instrument is made with great accuracy and beauty of finish by Messrs. George Tiemann & Co., N. Y.

Clinical Records from Private and Hospital Practice.

I.—*Two Cases of Hepatic Abscess.* By William A. Byrd, M. D., Quincy, Illinois.

Case I.—October 14, 1876, I was requested by Dr. J. F. Durant to see Mr. Theodore O. Eddy, who had been sick for five months, and been seen by several different physicians, but who was then wholly under the care of Dr. Durant.

When first taken sick his attendant supposed that he was laboring under a malarial attack, which improved by treatment, but still there remained pain in the right hypochondrium and shoulder. Sometimes there was slight jaundice, and occasionally there were slight rigors, with loss of appetite. There were a few hæmorrhoidal tumors, with hæmorrhage from the bowels when passing fæces. There was no diarrhœa, nor was there much constipation. The pain in the right hypochondrium and shoulder became so severe, three weeks before I saw him, that he was unable to leave his bed. There also appeared, at this time, a swelling in the right hypochondrium, that Dr. Durant believed to be an abscess. To make sure of the diagnosis, he asked me to aspirate it, which I did, passing the needle into the centre of the tumor, which was about an inch below the border of the ribs, two and a half inches to the right of the navel. At the depth of an inch and a half, the pus began to flow into the exhausted receiver, and continued to flow until five ounces were withdrawn.

The abscess was not opened with the knife at this time, for fear adhesions sufficiently firm for safety had not formed between the abdominal wall and the liver. If such should be the case, we hoped the track of the needle might act as a centre from which adhesive inflammation might extend.

The patient was informed that the pus would probably reform, and that, if there were any other deposits of pus near the cavity we had just made, they would open into it, as being the direction of the least resistance. Relief was evident from the time the pus began to flow, permitting him to leave his bed and walk about the next day.

October 23d, the cavity having again refilled, I opened it with a broad-bladed scalpel, following as nearly as possible the track of the aspirator needle, letting out, apparently, much more pus than when the aspirator was used.

Through this opening we passed a small India-rubber drainage-tube, which entered four inches toward the centre of the body before meeting with any resistance. This tube was left in for three or four weeks, being taken out and cleaned night and morning, at which times the abscess was gently syringed out with a weak solution of carbolic acid of about blood-heat. By this time, the tube not entering more than an inch, it was replaced with slippery-elm tents, which were continued until during the earlier part of January, 1877, when the tent came away while Mr. Eddy was at work, and, not being replaced, the wound soon healed. The patient has remained well until the present time.

His improvement was so rapid after the last operation that within a week therefrom he went over fifty miles on a business trip.

Case II.—October 10, 1877, I was requested by a professional friend, who was going to remove from the city, to see with him Patrick Doyle, an Irishman, who had been a section-hand on the railroad until within a few months, when he had gone to work in an ice-house. He was of middle age, married, spare build, slightly taller than medium, and fairly temperate. For some months he had been having "bilious spells." Dr. Michael Rooney, an accomplished physician, informs me that during the preceding July he attended him for an attack of intermittent fever, which was readily cured, and he heard no more of him until he heard of his last illness, but never saw him after July. Eight weeks before I saw him, he was taken with what his attendant pronounced a remittent malarial fever, which continued without abatement. When I saw him he was having rigors, night-sweats, diarrhœa, no appetite, tongue pale, moist, and thinly coated with a brownish white fur, pointed and trembling, pulse 120, feeble, temperature 101°. The right side was considerably swollen from the top of the ilium to the axilla, quite painful to the touch, red, and appeared as if it would point at the lower border of the ribs just where the posterior and anterior curves of the body meet. At this point I made an incision an inch and a half in length, going down to pus, which was not over half an inch in depth. Out of this opening there must have issued, within two hours, more than a gallon of pus, containing clots of blood and pieces of hepatic cellular tissue.

He was put on iron and quinine, with cream and soups for diet, upon which he seemed to improve, for the diarrhœa, sweating, and rigors ceased, while his appetite was much improved. The pus continued to discharge in great quantities. In about a week the discharge became darker, sometimes being nearly pure blood, the flesh around the wound for an inch and a half became dryly gangrenous, the swelling of the side entirely subsided, and the cavity in the body permitted a drainage-tube to pass eight or nine inches in depth toward the opposite side, through the centre of the body. There was no evidence of the discharges coming from anywhere but the central part of the liver and the walls of the abscess, which seemed to be located entirely in the liver. Feeling down in the wound with a probe, a hard rough substance was found; which, being drawn forth by a pair of forceps, proved to be the necrosed free end of the eleventh rib, an inch and a half of which came away. He slowly sank, the abscess discharging little but grumous blood the last forty-eight hours of his life. He died October 29th.

"Aitken's Practice," 3d American edition, vol. ii., p. 692, *et seq.*, contains the best short, succinct account of abscess of the liver with which I am acquainted. He says:

"Circumscribed inflammation and abscess of the liver, or, as it is sometimes called, *suppurative inflammation of the liver*, is always limited to one or several isolated portions; and, with the exception of congestive turgidness of the contiguous texture, the remaining portions of the gland-tissue are rarely implicated. The entire organ is never inflamed." . . .

"Fevers, rigors, and severe headache and delirium are not uncommon as early phenomena of suppurative inflammation of the liver; but sometimes there are no symptoms pointing to disease of the liver; and the difficulties which embarrass the diagnosis of suppurative hepatitis cannot be overrated. In 13 per cent. the disease runs a perfectly latent course, and in only 8 per cent. are the symptoms at all well-marked (Louis)." . . .

"These instances of general suppurative inflammation are insidious in approach, and the destruction of the substance of the liver proceeds silently and rapidly. The existence of the disease is often not known till severe structural changes in the organ manifest themselves, and then they run a rapid and often fatal course. This is especially the case when the inflammation is induced by the combined effects of heat and malaria."

Then follow the different methods of treatment, which it is not necessary for me to detail here, to none of which does the author give a very decided preference. I believe, if I had seen Case II. sooner, that perhaps I might have saved his life before the enormous amount of pus had formed and done so much damage; of course I should have proceeded to treat the case as I did Mr. Eddy, first aspirating, hoping if there were other abscesses that their contents would be forced into the cavity formed by the aspiration, which, on account of the unyielding nature of the substance of the liver, would act as an exhausted receiver, toward which the pus would be forced by the constant atmospheric pressure. That this doctrine will come to be held in time as correct, I have no doubt.

In all cases of seemingly malarial trouble that we have to treat, I think the liver should be carefully searched by palpation for signs of abscess; and also prolonged symptoms of fever, with rigors, sweats, hæmorrhoids, and bleeding from the rectum during defecation, should place us on our guard. Such troubles may arise, and be the complication that actually produces the death of the patient, without ever being suspected. Doyle would undoubtedly have died in a few days, and very probably without the abscess opening spontaneously; the certificate of the death would have read: "Died of typho-malarial fever."

That physical and rational symptoms may point the practitioner to very small collections of fluid in the substance of the liver, will be seen by the report in the December (1877) number of the *Virginia Medical Monthly*, of a case of echinococcus of the liver, written by my friend Dr. Francis Drude, a German physician of long experience and great learning, that I saw in consultation, and diagnosed the situation of the sac, which held but two ounces of fluid, and was two inches and a half below the surface. This case improved very rapidly; the fluid was removed by aspiration. The patient was in my office recently, claiming to weigh more than he ever did before in his life, and that his health was as good, so far as he knew, as it ever was.

Dr. Aitken looks upon hunting for abscess of the liver with trocar and acupressure needles with less favor than the treatment by any other method, in which I fully concur when there is no sign that approaches the definite to indicate the true location of the pus or fluid. Yet I believe in most cases the true location, unless the depot is very small, can be made out by carefully searching with a delicate or cultivated touch. With the aid of the aspirator such treatment is much safer and more satisfactory than it could have been heretofore.

II.—*Cases of Delirium and other Cerebral Phenomena observed after the Operation for Cataract.* By Dr. J. SANTOS FERNANDEZ, of Havana. Translated by Dr. A. B. DE LUNA, of New York.

DELIRIUM, in general, is a disorder of the mind characterized by perversion of language and intellectual acts,[1] which may be divided into febrile and non-febrile. Among its numerous causes, three may be mentioned as playing the most important part in its development, viz.: 1st, Diseases of the brain and its meninges; 2d, Certain hæmatiases or alterations of the blood; and 3d, Essential or sympathetic cerebral excitement. Delirium of a non-febrile nature, and whose etiology it is difficult to ascertain, is the most remarkable among the cerebral phenomena observed after the operation for cataract. Sichel[1] was the first to allude to it, in 1861, Borelli[2] reporting one case about the same time, and Warlomont[3] another still more recent. The cases I report further on will serve to demonstrate that its occurrence is even more frequent than one would be led to suppose, inasmuch as I have seen it several times in over five hundred operations for cataract and five thousand cases of eye diseases.

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[1] Bouchut's "Pathologie Générale," second edition, p. 966.

Sichel accounts for it by the closure of the lids, which confuses the patient in such a manner that he is not able to realize what has happened to him, while Borelli mentions hospital nostalgia as its cause. Ready as I am to accept the opinion of these two observers, I do not think that the facts mentioned constitute the only causes of the delirium and other cerebral phenomena consequent on the operation for cataract, for there are others no less important, such as age, and the moral effect produced by the result of the operation. I shall, therefore, classify the causes as follows:

1st, Occlusion of the eyelids.
2d, Hospital nostalgia.
3d, Age of patient.
4th, Moral effect of operation.

To the causes just enumerated might be added another, which, although not intimately connected with the operation for cataract, from the fact of its having occurred after this procedure, may be referred to in this connection. I allude to the delirium produced by the use of atropine after operations of this kind.

The following cases are presented in illustration of the subject under consideration:

Case I.[4]—Mrs. V., aged eighty years, native of Havana, presented herself in my clinic, November 29, 1876, and was registered under No. 3,666. A year before, she began to lose the sight of the right eye, and lately has noticed some cloudiness in the left. The ophthalmoscope, with previous dilatation of pupil, reveals total opacity of the right crystalline lens, and incipient of the left. In August, 1877, she came again with very little sight, and demanding to have the right eye operated on, which was done the morning of the 21st, by section of the cornea in the inferior hemisphere, with a small flap and iridectomia, and without any accident worth mentioning. The operation completed, the patient expressed great surprise at the time of applying the dressing, and refused to have the eyes bandaged. This was accomplished, however, and she was put to bed, but still insisting that the sound eye should be uncovered. At our visit in the evening she said the eye did not trouble her, but was so unwilling to retain the bandage that she attempted to remove it in my presence. She was told that on its retention depended her recovery; but no sooner had I left than her unwillingness became more marked, and in spite of the efforts and advice of the nurse she would pull off the dressing every little while, talking at random, and was so restless as to cause alarm to her attendants. Being sent for, I examined the eye, and found the edges of the wound in apposition, and hardly any inflammatory reaction. She was in a state of great nervous excitement, apparent by her words and gestures; complained of faintness, and declared her end was at hand. She was quieted as much as possible, and the bandage applied once more; but her condition remaining unchanged, and fearing some other cerebral complication, we decided to uncover one eye on the third day, which proved satisfactory, the patient remaining quietly in bed till after the ninth day, when she was discharged. This lady remained under observation until the 7th of October, when there was absolute transparency of the media, hardly any conjunctival injection, and slight photophobia. It could not be ascertained whether there was any tendency to insanity in her family, and she herself never had shown any manifestations of it.

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[1] *Union Médicale*, n. 1, 1863.
[2] *Giornale di Oftalm. Italiana*, 1863.
[3] "Annales d'oculistique," t. 54, p. 214.
[4] Reported by Dr. D. Madan.

Case II.[1]—Mr. F., aged forty-seven years, a Spaniard, who had resided in Cienfuegos twenty-four years, came to my clinic June 11, 1875, complaining of loss of vision of the left eye. The pupil being dilated by atropine, the left crystalline lens was found totally opaque, and of a bluish-white color. The operation indicated was performed on the 24th of June by inferior corneal section, with iridectomia, with no untoward event worth noting, except some loss of vitreous humor. The dressing was applied, and the patient put to bed, remaining comfortable the first twenty-four hours, at the end of which time the borders of the wound had united, and there was slight conjunctival reaction. At the time of my morning visit the patient seemed very quiet, which I attributed to home-sickness, and thought nothing more about it until the afternoon, when I was surprised to see him walk into the consulting-room, pale, exceedingly frightened, and carrying the dressing in his hand. At the moment, and without questioning him, I thought he had quarreled with the nurse, and proceeded to rebuke the latter; but the attendant quickly informed me of my mistake, explaining that, since the day before, the patient had been constantly speaking of leaving, and that at that moment, after a fit of passion, he pulled off the bandage, and started to go without yielding to reason or opposition. On questioning the patient he acknowledged being well taken care of, and disclaimed any grievance, but added that he could remain no longer away from home, and was going. I induced him, finally, and with great difficulty, to return to his room and bed; but hardly an hour had elapsed when his attendant again came down and reported another paroxysm, characterized by great nervous excitement, with decided tendency to leave the bed and return home. His friends were notified; and, although his wife came to stay with him, his condition remained unchanged, and Dr. Arango, who kindly examined him, found no fever nor any apparent explanation for the delirium, for neither was he intemperate in his habits nor was there any family history of insanity in any form. The delirium was characterized by such fright that, pale and trembling, he would cling to his wife, constantly begging to return home. The next day, the third after the operation, the condition of the eye was unfavorable, owing to the impossibility of retaining the dressing a single moment. His wife, seeing that nothing would quiet him, resolved to take him to his boarding-house in Havana; but, as the patient's mania was to go to Cienfuegos, where he resided, he continued restless, and, although not so much, still sufficiently to increase the inflammatory action going on in the eye, which was aggravated by a blow accidentally received, atrophy being the final result. The patient returned home; and some time after, when we saw him again, his condition was perfectly normal.

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[1] Reported by Dr. Paz.

Case III.—Mr. J. A., aged eighty-four, native of Florida, consulted me October 3d, 1876, saying that for two years his sight had been gradually failing, and at that time he could neither read nor write, and it was with difficulty he distinguished faces. The ophthalmoscope revealed opacity of both lenses, which gradually blinded him until the 5th of January, 1877, when he could hardly walk about. The effects of advanced age in this patient could be plainly appreciated by his slow speech, the ease and frequency with which he would lose the thread of conversation, his slow gait, and tendency to fall asleep. Anxious to recover sight, he continually asked to have his eyes operated on, which I refused, fearing that his state of senility would interfere with the proper cicatrization in the ceratotomia which would necessarily be practised.

At last, refusal availing nothing, and the patient persisting in his desire for the operation, I felt justified in performing it on the morning of the 15th of January. Once operated on and the dressing applied, he was put to bed; but not to remain in quiet repose, for in spite of the protestations of the nurse, and without complaining of pain in the eye, or discomfort of any kind, he would not keep quiet one minute, turning constantly from side to side, lying on his face, and tearing off the dressing.

This state of things continued daily until he would hardly take any food; for, whenever the thought occurred to him, he would ask for some special article of food, which was refused when brought, and ten minutes afterward he would complain of being starved and neglected. The corneal incision, which began to unite during the first twenty-four hours, now showed separation of the edges and suppuration of the small flap, the latter gradually increasing until the whole membrane was destroyed. In this condition he was removed from our observation, complaining of no suffering whatever, but in a state which might properly be called senile dementia.

Case IV.—Mr. S. V., aged seventy-five, a Spaniard, resident of the Eastern Department, whence he emigrated on account of the war, after losing his property and some of his relatives and friends. Six years before, the right eye had been operated on for cataract, and now there was total opacity of the crystalline lens of the left. Health poor, often complaining of the stomach, suffering from tremor senilis, and manifesting such a state of mind that any unpleasant news or event would depress him deeply, and cause him to fear that he was going to die. His friends, and particularly his children, attributed his state to the absence of vision in the left eye, which they wished to have operated upon, in order that he might recover the peace of mind lost since he left his home.

For a long time I refused to accede to their request; but, his general health having improved greatly, I finally yielded to the wishes of his family, and operated the 23d of November, 1875, assisted by Drs. Le Roy and Valdespino. In order to save all anxiety to the patient, he was not informed beforehand of the time of the operation, and this was rapidly completed without any accident or drawback. The patient was put to bed, and then the trouble began. No position would suit him; no one and nothing would please him; he would feel cold in spite of all the coverings which might be piled upon him; would complain constantly without saying what ailed him; refused to take food, and all his previous afflictions were renewed with greater intensity.

This restlessness could not but produce an unfavorable effect on the eye operated upon, whose ocular conjunctiva, injected and evincing tendency to chemosis, indicated internal complications, although the wound had closed perfectly. Fortunately our worst anticipations were not realized, although the conjunctival symptoms persisted for many days, during which the general condition of the patient became alarming. A very high fever, with delirium, made it necessary to place him under the care of one of my colleagues, who fortunately brought him out of it safely; and six weeks afterward, on leaving his bed, the ocular symptoms had disappeared, and he was furnished with the glasses adapted to his case.

The acuteness of vision could not be ascertained with exactness, on account of his condition as described, and which continued unimproved; but, judging from the state of the eye after the operation, it must have been as perfect as could be expected at that advanced age. The condition of the patient, however, did not improve in the least; his feebleness and nervous excitement increased, and he died ten months after the operation.

Case V.—Mr. J. O., aged sixty-four, native of Havana, a lawyer, single, came to my clinic, January 8, 1877, and was entered under No. 3,768 of the register. He said that, three or four months previously, he noticed that the sight of his left eye was failing, and, a few days before admission, observed the same trouble in the right eye. Both pupils being dilated, and the eyes examined, I discovered a cataract in each, complete in the left and incomplete in the right eye. Willing to have the left eye operated upon, I prescribed an atropine collyrium, which he was to use every second day. A short time after, he had an attack of paralysis of the left arm, with mouth drawn to the left side, impediment in his speech, but no loss of consciousness: these symptoms lasted over an hour, and I considered them due to transient cerebral congestion, although one of my colleagues suspected they were caused by the atropine. As the symptoms disappeared, and there was some constipation, I simply prescribed calomel as a cathartic.

In view of the progressive loss of vision of the right eye, the left was operated upon May 1st. The necessary incision for the extraction of the cataract was made in the corneo-sclerotic border, to which, as well as to the somewhat undermined constitution of the patient, I attributed the tardy disappearance of the injection of the conjunctiva near the incision. The transparency of the ocular media was, however, perfect; but as the patient, a busy professional man, had already been absent from his duties in court for two months, he became uneasy and worried by the thought that he would have to give up business in spite of the operation.

As soon as the state of the eye allowed it he resumed his duties, only to find himself unable to perform them, his anxiety of mind resulting in such a state of melancholia that he declared he felt the approach of death, became a victim to obstinate insomnia, and completely lost his appetite. This state of things lasted a month, at the end of which time it began to disappear owing to the gradual improvement of his sight, a tonic treatment, and his being sent away from Havana for a change.

Case IV.[1]—Mr. T. S., aged sixty-five years, clergyman, and a native of Puerto Principe, came to the clinic, February 5, 1878, and was entered under No. 5,270 of register. He began to lose sight gradually and without pain in 1868, first in the right and then in the left eye, and since 1871 could neither read nor write. Complete cataract in both eyes was diagnosed, and the first operation was proposed and performed April 2d without accident of any kind. The required dressing applied, he was placed in bed and did well the first day, but on the second complained of inability to rest, although he changed his position, and of experiencing a sensation of fear whenever he fell into a doze. Without pain in the eye or general discomfort, with a good appetite, and no uncomfortable sensation, he complained of great "uneasiness," unaccountable to himself, confessed that he was very nervous even when in good health, and, being a believer in homœopathy, declared that a few homœopathic globules would quiet him. Attributing a nervous origin to said phenomena, deeming it unwise to offer any opposition to the wishes of the patient, and in the belief that the globules would only be productive of a moral effect, he was permitted to take them, and we succeeded in quieting him so that he was in better condition to sleep. He complained no more, and twenty days after began to use the sight he had recovered.

The second operation was performed on May 5th, without discission of the capsule or any accident worth mentioning. It may be well to state that the patient seemed very much unconcerned at the time of and after this operation, which might be explained by the fact that, having recovered the sight of one eye, he had no fear of becoming totally blind.

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[1] Reported by Dr. D. Madan.

Case VII.—Mr. N. N., aged sixty-five years, a clergyman, consulted me in February, 1875, both eyes being affected with cataract. The right was operated upon two years before, but the whole capsule was not extracted, and the patient suffered from dazzling when exposed to the light. In March I performed its extraction without accident, in presence of several medical gentlemen; and, the operation completed, the required dressing was applied, and the patient placed in bed. A slight cough, apparently nervous, led one of my colleagues to prescribe a soothing mixture, which we told him before leaving would be placed on the table by the bed, and that the nurse would administer it as directed. Later on, the patient, wishing to take some of the medicine, but unwilling to trouble the attendant, reached over and grasping a vial swallowed its contents, which were a collyrium of five centigrammes of atropine in ten grammes of water. Of this he informed me shortly after when I visited him, saying, however, that he had taken a dose of the mixture prescribed; but a glance at the table, where I saw the vial containing the cough-mixture untouched, and the one containing the collyrium empty, revealed at once what had happened, the patient of his own accord commenting also on the bitterness of the medicine.

I had to deal with a case of poisoning by atropine, the consequences of which it was impossible to foretell; and after consulting with Dr. Bangs, who attended the case with me, I prescribed the following mixture as an antidote: ℞. Pot. iod., 40 centigrammes; iodinum, 30 centigrammes; aquæ, 1 litre. M. et sig. one half a glassful at a time.

Three hours had scarcely elapsed since the swallowing of the poison before the patient was completely out of his mind. The first symptom noticed was a tendency to uncover himself, throwing off the bed-clothes; then he would sit up every few moments and talk incoherently; the delirium became complete, the patient expressing his desire to go to church, taking the bed-posts for the entrance, and becoming angry and aggressive when the attendants attempted to undeceive him. Three men had to hold him by main force, and his unwillingness to remain in bed was taken advantage of to keep him walking in the room. The only way to quiet and induce him to take the antidote was by constantly praying in his presence; and, during the night the delirium lasted, many were the litanies and rosary prayers the attendants had to offer, and in which he would join, constantly expressing his desire to go to church.

At 8 o'clock the following morning, after twelve hours of delirium, we succeeded in quieting him, and he remained in bed and asleep until 10 A. M., when he awoke, answering questions intelligently, although absolutely unconscious of what had transpired. Raising the bandage which, thanks to the care of the attendants, he could not displace, I was surprised to see the eye in excellent condition.

At the end of three or four days the state of the eye operated upon and of his general health was so favorable that his desire to return to the convent was complied with. Once there, his excessive zeal led him to resume his religious practices with great earnestness, and this was perhaps the cause of a violent attack of inflammation of the iris and choroid, which more than once I despaired of being able to subdue. The patient fortunately came out of this new danger as safely as he did of the poisoning, recovering with very good visual acuteness in the eye operated upon.

From the cases here enumerated we may deduce the following practical conclusions:

1. Persons of advanced age, or in a state of marked senility, should not have one eye operated on while retaining vision in the other.

2. In cases of blindness from cataract, no matter how old the patient, the operation should be performed, even at the risk of subsequent cerebral manifestations, inasmuch as these very phenomena may occur from the absence of sight resulting from non-interference.

3. To avoid the occurrence of such cerebral manifestations, due in the majority of instances to moral impression, patients should be surrounded with every comfort before and after the operation.

4. These cerebral disorders are also observed in practice independently of the operation for cataract; but this fact makes their recognition no less important, inasmuch as we may easily admit that this operative procedure may play an important *rôle* in exciting or avoiding them.

5. Delirium after the operation for cataract may be produced by atropine, either by its absorption through the lachrymal ducts, which has occurred; by the solution dropping into the mouth; or by its being swallowed through mistake, as in the last case here recorded.

Notes of Hospital Practice.

BELLEVUE HOSPITAL.

Jaborandi.—Jaborandi has been in use on the medical service of the hospital sufficiently long to allow of an estimate being given as to its value as a therapeutical agent. The method of employing it has been either as a fluid extract in drachm doses, or as its active principle, pilocarpine. The dose of pilocarpine is gr. i—iss.

Cardiac Disease with Anasarca.—A man aged twenty-eight entered hospital suffering from cardiac disease with anasarca and œdema of the lungs. Dyspnœa was an urgent symptom. The fluid extract of the drug was given in drachm doses every afternoon, and the relief, which occurred twenty minutes after its administration, lasted for twelve hours. Its use was continued for three months, and during the whole of that time it was not necessary to increase the dose. The benefit which was experienced at the first administration continued without change till death occurred. Death was due to exhaustion. The effect of the remedy was so decided, that the patient begged for it in case it was not given to him. The usual physiological effects of salivation and diaphoresis occurred about twenty minutes after the jaborandi had been given.

Acute Bright's Disease.—A woman aged thirty entered hospital suffering from acute nephritis, with general œdema and symptoms of uræmic poisoning. The value of the remedy was very decided. Within three days the dropsy had in great part disappeared. In cases of œdema of the lungs decided benefit resulted from the use of the drug, and a sufficient number of cases were under observation to test its value.

It was found that pilocarpine produced a greater depressant action upon the heart than jaborandi itself.

The unfavorable results reported by some observers may be accounted for by the fact that all specimens of the drug found in the market are not of equal value, as pointed out by Dr. E. R. Squibb at a meeting of the Therapeutical Society (Journal, February, 1878, page 171).

Leucocythæmia.—There is at the present in hospital a man aged sixty-one, giving a history of leucocythæmia. The first symptom noticed was an enlargement of the abdomen, which took place three years ago, and continued to increase till admission, when it was found that the tumor was the spleen. It extended from the iliac fossa to the ribs. The liver was also enlarged. An examination of the blood showed a marked increase in the proportion of white corpuscles.

MOUNT SINAI HOSPITAL.

Sarcoma of Lower Jaw.—A man, aged fifty-nine, entered the service of Dr. J. T. Darby, presenting a large tumor of the lower jaw. During the past two years and a half, he suffered from facial neuralgia, affecting the right side. Three months ago a small tumor made its appearance on the outside of the cheek. This was painless, but grew rapidly, and after three weeks lancinating pains made their appearance in it. These were worst at night. When he was admitted the tumor was the size of a large orange, and extended from the malar prominence above to the hyoid bone below, and from the ramus on the outside to beyond the median line. In the central portion of the tumor there was an area of inflamed skin. There was, however, no ulceration.

It was decided to give the patient the chance of an operation, as his condition was such as to render life a misery to him. The carotid artery was first tied, and then the whole of the mass removed, including one-half of the right lower jaw. A sufficient amount of skin was retained to form a flap and leave no free ulcerating surface. The patient did well for a few days, but ultimately died of asthenia.

An examination of the mass proved it to be a sarcoma, which involved the periosteum, but not the bone.

Treatment of Ulcers by the Elastic Bandage.—The treatment of ulcers of the legs by means of the elastic bandage has proved very satisfactory and much easier in practice than the old method of strapping and bandaging. A roll of Esmarch's elastic bandage is carried once around the foot and then up the leg, covering the ulcer and extending four or five inches above. The patient does not complain of pain from the elastic pressure, and in every respect the method is of decided value.

Removal of a Portion of a Catheter from the Bladder.—A man was admitted stating that he had suffered from atony of the bladder, and in his attempts to pass a catheter had left half of the instrument in the bladder. The accident happened six days before he presented himself, and had not caused any urgent symptoms. An examination by the sound showed the presence of a foreign body. The bladder was then injected, and, on the fluid coming out, the portion of catheter came out with it. It proved to be half of an elastic catheter, covered with phosphates, and corresponding to No. 7 of the French scale.

The case was interesting in showing that the current of fluid coming out of the bladder has a tendency to carry any elongated body out with it. At first it might be supposed that such a body would become placed across the neck of the bladder, and thus defy any attempt at extraction; but the water seems to assume a circular motion, so that any long body not of too much weight arranges itself in the current, and is carried out lengthwise.

Some years ago a medical student was unfortunate enough to leave a portion of a bougie in his bladder in a manner similar to the case detailed above. He consulted a surgeon of this city and was advised to retain his water as long as possible. He did so, and in passing it found the bougie to come away without any difficulty.

Abscess around the Anus.—A number of patients come into hospital suffering from abscess in the neighborhood of the anus. These resemble an ischio-rectal abscess opening outward; they are, however, confined to the subcutaneous connective tissue.

It is noticed that they are most common in pedlars, but at times are the result of direct violence, such as a kick.

Hæmorrhage following the Extraction of Teeth.—A case of hæmorrhage following the extraction of teeth was recently under treatment in hospital. The patient had six teeth extracted from the upper jaw. Free hæmorrhage followed, but was controlled by plugging the alveoli. Subsequently, however, it returned. On admission the patient was very anæmic. He said that the teeth began to bleed every day at three o'clock, and continued for five days. He had never noticed before any tendency to hæmorrhage. The actual cautery was applied to the alveoli, and then they were plugged with styptic cotton.

Clinical Reports of the Demilt Dispensary.

ON THE CAUSES AND TREATMENT OF DYSURIA IN FEMALES.

DISEASES OF WOMEN.

By Dr. John S. Warren.

The great frequency of urinary disorders, permanent and transient, which afflict many females from the time of puberty up to extreme old age, has led me to select the following diseased conditions, which directly or indirectly produce such difficulties, and which are generally recognized and appropriately treated by physicians who have any extended gynæcological practice, but which are too often overlooked and improperly diagnosticated by general practitioners from neglect to make a local examination. I may here also add that, even if it were possible, in many instances, to determine the exact disease from the subjective symptoms, still the *superiority* of *topical* treatment over the influence of *internal* remedies. should, in the very large proportion of cases, lead us to choose it in preference.

Not but that much may be accomplished by a judicious use of opiates, rest, and the avoidance of certain articles of food and drinks which are likely to produce irritating urine.

But, on the whole, *local* treatment in the severe forms is by far the most effective.

Case I.—Mrs. B. came to the dispensary in October,

1877. She was twenty-nine years of age, married fourteen years, had had three children, the youngest five years ago; has suffered for the past three years from dyspareunia, and for about three months prior to her visit to the dispensary has had constant dysuria, which has increased in its severity so much that at the above date her sufferings are almost unbearable.

Examination revealed vulval orifice very pale and dry, and the urethral meatus distended by a vascular growth about the size of a small pea, exquisitely tender to the touch, and easy to bleed. Vagina short and indistensible on account of the results of a former cellulitis. The caruncle was excised, and nitric acid applied; and later, as she returned, a few applications of carbolic acid completed her cure, and her painful micturition had disappeared.

Case II.—Mrs. McD. came to the dispensary January 21, 1878. Thirty-nine years of age, has had four children. Five weeks ago she had a profuse discharge from the vagina, with intense pain when she passed her water (she said at that time her husband had strained himself, and also had a discharge). Of late she had not noticed any leucorrheal flow, but still suffered from irritability of the bladder, and pain when she voided her urine, which was very often. A local examination discovered scarcely any purulent discharge from the vagina, but the urethra at sight looked highly inflamed, and several drops of pus could be expressed by passing the finger along its base. Applied carbolic acid, diluted with glycerine, to the entire length of the canal, and gave her a vaginal injection of sulph. zinc.

January 30th.—Is much better, intense redness has disappeared. Carbolic acid, pure, applied.

February 6th.—Returns cured.

Case II.—Mrs. B. (December 8, 1875), aged twenty-six, a robust, healthy-looking young woman, menstruating regularly, but had borne no children; complained of a disagreeable pressure in the pubic region, more exaggerated upon the left side, and a constant irritability of the bladder, and said that her suffering from that affection was excessive. Examination found the vagina of good size and normal appearance, but the uterus anteflexed and twisted considerably to the left side, congested and tender to the touch. She was treated by replacing the organ approximately in its natural position, and a pessary of cotton wool soaked in glycerine was applied between it and the pubis; later a Thomas anteversion pessary was borne, and gave great relief. After this, I discontinued my attendance at the dispensary for several weeks, on account of sickness, and did not see her again until five or six months later. She then told me that she had worn the instrument with great relief, until it was removed on account of vaginal irritation, and that when it was replaced by another physician it could not be borne, and so she had discontinued its use.

This time I found her condition better than when I first saw her; but, as she still complained of some vesical disturbance, I fitted another instrument—a modification of Graily Hewitt's—which gave entire relief, except that she had a slight return of symptoms when menstruation appeared. Several months later I saw her, and she still reported a disappearance of bladder trouble.

The foregoing cases are given as illustrations of some of the most frequent causes of female urinary disorders. The first case, that of vascular growth at the meatus urinarius, is typical of one of the most painful diseases, and exists in women of all ages, but is most commonly found in those who are middle-aged or past the menopause. The growths are of all sizes and forms, varying from a slightly congested and hypertrophied condition of the mucous membrane of the canal to the size of a full-grown raspberry, to which indeed it bears no small resemblance. It is generally situated at the meatus externus, and therefore readily discoverable by an ocular examination after separation of the labia, though not infrequently it is a little further distant within, and in such cases I have made use of the ordinary ear-specula for their detection and treatment. This tumor may be pedunculated or sessile in growth, is of a bright-scarlet color, easy to tear and bleed, and, as a rule, exquisitely tender and sensitive to the touch; so that urination, coition, friction from clothing or from washing, give most intense pain and suffering. In some instances, however, when I have made vaginal and uterine examinations for other symptoms, I have found these growths yielding no painful sensations whatever; and from their history I have judged that they may exist a considerable length of time until some exciting cause, as friction or disordered urinary secretions, makes them irritable.

The treatment for the removal of these painful growths is excision by the scissors, cauterization by the actual cautery, nitric or carbolic acids, the silk ligature and the snare—the one used for aural purposes is best adapted, and is especially useful when the caruncle is situated some little distance from the meatus; here, too, the ear-specula or a glass tube is very useful for caustic application to the diseased portions of the urethra, for, when the growth is sessile in character, its complete destruction by a powerful escharotic, like nitric acid, or the actual cautery, is necessary.

Case II. represents one of the many forms of urethritis, a disease of frequent occurrence in females, and which, though in many instances traceable to one of two causes, namely, gonorrheal poison or to injury from parturition, may still exist as a resultant of many other affections, as a vaginitis from simple irritation from the passage of acrid urine charged with lithates or ammonia, or long-continued uterine displacements.

In cases of urethritis, simple, chronic, or acute, the pain is always referred to the water passage, and is of a burning, scalding character, during and for some minutes after micturition; and almost invariably the urethra is unusually tender to the touch, both at the meatus and when the finger is passed along its base within the vagina, while the use of the catheter or probe is very painful. In the acute form, pressure beneath the canal will also generally cause a drop or more of purulent mucus to exude, while in the chronic the edges of the orifice and the urethra appear red and congested. The former is also most generally associated with an inflamed condition of the vulva and vagina, while in the latter these symptoms have disappeared.

The treatment of the acute form must depend upon the causation and upon the accompanying vaginitis. Almost always at the outset, soothing vaginal injections, as a weak solution of lead and opium or sulphate of zinc, together with such internal medication as will render the urine bland and unirritating, are needed. Next in order should follow local applications; and the most useful and appropriate one of all others in my experience is the pure carbolic acid, diluted with glycerine as suits the individual case. I, however, never find it necessary to use it weaker than a half dilution of the ordinary solution of the crystals, and two or three applications only are necessary to effect a cure.

If the affection is the result of parturition, and the urethra is swollen from bruising and pressure, a small-sized catheter must be used at regular intervals to avoid retention and its consequences. In the chronic form, the local treatment is of still more importance, and internal remedies of little avail unless after its use. Here astringents, such as alum, sulphate of zinc, and suppositories of iodoform and belladonna are very appropriate; but here, too, the use of carbolic acid has, in my hands, proved the most serviceable of all others, and its use for a few times will generally relieve all painful symptoms.

Case III.—Anteflexion is one of the many examples that might be offered of another cause of dysuria in women. Flexions and versions *forward* most frequently, of all other uterine displacements, produce such troubles—yet by no means invariably so—for, owing to the close anatomical relations of the cervix uteri and the anterior wall of the vagina with the bladder, the latter is more or less drawn out of position by all other distortions of the womb.

As, for instance, if the patient be a child-bearing woman, she may have during parturition suffered from a complete or partial perineal rupture, which has never united, and this, coupled with a large and subinvoluted uterus which has prolapsed or retroverted from a lack of support and unnatural weight, has caused cystocele, and, consequently, a continued tendency to stagnation of urine and irritating deposits. Or, again, in early pregnancy, difficult micturition, persisting for some time and increasing, should suggest a retroflexion or retroversion, the early detection of which is exceedingly important for the patient's safety.

And, finally, numerous other causes beside those cited may produce painful and frequent urination, as cystitis, vaginitis, ulcerations and fissures of the vaginal orifice, hemorrhoids, masturbation, causing an unnatural and sensitive condition of the meatus and labia, fibroids, malignant diseases of the uterus and vulva, and numerous other affections, all of which need an ocular or digital examination for their diagnosis, and local treatment for their cure.

Proceedings of Societies.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, May 8, 1878.

Dr. John C. Peters, President.

Apoplexy; Neuro-Retinitis; Hæmorrhage into the Retina.—Dr. Amidon presented the retinæ of a patient, showing hæmorrhage into them. Healthy retinæ were also presented by way of contrast. The patient was a man, aged forty years, who had suffered from cystitis, and for three months before death had complained of numbness of the hands. The urine was albuminous, and on examination he was found to have neuro-retinitis, with retinal hæmorrhage. He was suddenly attacked with coma and hemiplegia, and died in a few hours.

Autopsy.—Extravasation was found to have taken place into the ventricles of the brain. The eyes were examined by the ophthalmoscope after death; the media were clear. The right eye showed two points of hæmorrhage, and on examining closely it was found that the extravasation extended after death.

Double Catarrhal Pneumonia.—Dr. Beverly Robinson presented a heart showing evidences of endo-carditis, which he had removed from a patient who died with double catarrhal pneumonia at Charity Hospital. The disease began with a chill on April 29th. Death occurred in a few days. *Post mortem.*—The lungs showed double catarrhal pneumonia.

Removal of Pin from Throat.—Dr. Robinson also presented an ordinary brass pin which he had removed from a patient under the following circumstances. A man had the pin in his mouth and accidentally it dropped into the throat. Pain was complained of in deglutition, and on examination with the laryngoscope it was found resting on the epiglottis. It was removed without difficulty by the forceps an hour and a half after having fallen into the pharynx.

Myxoma of the Eye.—Dr. C. Heitzmann presented an important tumor of the eye which had been sent by Dr. Holmes, of Chicago. The interest of the specimen rested in the fact that it was a myxoma, probably originating in the vitreous, and as such benign in character. Dr. Heitzmann said that it had been denied that any benign tumor ever occurred on the eye, from the fact that heretofore none had been described. Examination of the specimen showed that the eyeball was enlarged, that the retina and choroid were gone, and that the cornea was replaced by changed tissue.

Amputation of Rectum.—Dr. Keyes presented a specimen of epithelial cancer of the rectum, of the cylindrical variety, which he had removed ten days ago from a lady, aged fifty years. The patient had been for two years suffering from difficulty in defecation. When the rectum was examined by the finger a mass was discovered three inches from the rectum. This mass presented the evidences of cauliflower growth. The first operation practised for its removal was by means of ligatures. These ligatures encircled the mass in loops, and after ten days they came away, bringing with them two inches of the rectum. The patient felt much improved after a month, but on examination it was found that the disease was not checked. It was then decided to perform Volkman's method of excision of the rectum. This was done under the influence of Lister's spray, thymol being used as the antiseptic agent. The rectum was split posteriorly, the gut drawn down, and the diseased portion removed. There was only a slight amount of hæmorrhage. Ten days after the operation the case was progressing favorably. Subsequent to the operation a sponge was introduced into the vagina with the intention of pressing upon the rectum. The effect of this was not advantageous, as it prevented the escape of flatus, and thus caused tension upon the stitches at the anus. In another case, Dr. Keyes said, he would keep the anus open so as to allow of the escape of the intestinal gas.

Dr. Briddon referred to the case presented by him to the Society, and in which no union took place. The cicatricial tissue extending from the lower margin of the rectum to the anus measured two inches in length. In Dr. Briddon's case there was no control of the sphincters.

Membranous Colitis.—Dr. Putnam-Jacobi presented some albuminous shreds which had been passed by an hysterical patient. The specimens showed no sign of fibrillation under the microscope. There was no distress or unpleasant symptoms till latterly. The treatment consisted in the administration of tincture of iron. The president said all of the cases of membranous colitis presented to the Society occurred in females. In one case a patient took a teaspoonful of tincture of iodine by mistake. The accident was followed by cure of the disease. Dr. W. M. Carpenter reported a case, of two years' duration, in which cure was effected by keeping the patient a week in bed. Dr. Loomis referred to a case cured by a change of residence.

Intra-Capsular Fracture.—Dr. L. A. Stimson presented a case of intra-capsular fracture of the femur in which the capsule was not torn. The patient was a man sixty-five years of age. Fracture took place at the junction of the head and neck.

Anchylosis of the Elbow; Excision.—Dr. Stimson presented a second specimen of the elbow-joint which he had removed by excision. The patient had inflammatory rheumatism when twelve years of age, and, following that, anchylosis became established in many of the joints, particularly in the elbows. One elbow was treated by *brisement forcé*, but after a month it was as stiff as ever. On the elbow of the other side excision was performed. Considerable discussion took place in regard to the extent of anchylosis in arthritis deformans.

Stated Meeting, May 22, 1878.

Dr. John C. Peters, President.

Thoracic Tumor; Lympho-Sarcoma.—Dr. William M. Polk presented a specimen of a tumor of the lung, which was of interest from the difficulty in diagnosis, as well as from its rarity. The history was as follows: A man aged forty-six came under observation August 26, 1877. He had a severe attack of pleurisy on the left side when he was twenty-one years of age, but since that time he had been in good health till six months before he came under treatment, when he suffered from a cough, and, subsequently, weakness and shortness of breath on exertion. On examination, the respirations were 26, but no cyanosis. After slight exertion, however, the respirations became labored, and increased in frequency. The pulse was 90—temperature normal.

Inspection.—Diminished movement of the entire left side, most marked above, where there was no expansion. The entire side was greatly bulged, but most especially in the mammary infra-clavicular and supra-clavicular regions. There was no glandular enlargement, or interference with the venous circulation in the neck. The surface of the chest-wall was uniformly smooth throughout, the interspaces being widened and on a level with the ribs. There was slight movement in the infra-scapular region during respiration, but none on any other portion of the affected side.

Palpation.—There was no fremitus except in the infra-scapular region.

Percussion.—There was flatness over the whole of the side, with the exception of a triangular space in the infra-scapular region. This triangular space was bounded below by the base of the lung, to the right by the spinal column, and to the left by a line running from the middle of the dorsal spine to the outer part of the base of the lung. The resonant region was not changed by alteration in the position of the patient.

Auscultation.—The sounds obtained over the non-resonant part of the lung were distinctly bronchial in character, and not accompanied by râles over the resonant triangular space.

The breathing was vesicular. The heart was displaced to the right, the apex being situated at the junction of the cartilages of the sixth and seventh ribs on the right side. The patient suffered little from cough, and expectorated a small amount of muco-pus. There was no history of fever or sweatings.

Dr. Polk said that, from evidences furnished by auscultation and percussion, as well as the history of the patient, he was strongly of the opinion that the case was one of pleurisy, with effusion, and that the resonant area posteriorly was caused by adhesions which bound the lung down. On the following day he repeated the examination at the patient's house, and then began to suspect the possibility of a thoracic tumor from the following reasons: The clear character of the bronchial breathing, and the location of its greatest intensity, namely, the infra-clavicular and mammary regions. Again, the region in which the bronchial breathing was most marked was in front and above, whereas, if the lung was compressed by fluid, the greatest intensity should have been at the root posteriorly.

The condition of the resonant space anteriorly was hardly to be expected, even granting adhesions of considerable strength, for the pressure above would overcome them unless the pleura was thickened to a greater extent than the distinctness of vesicular respiration would indicate. The last circumstance opposed to pleurisy was no increase of temperature.

The case progressed without much change; the strength of the patient, however, manifestly diminished. About the middle of September the chest was aspirated in several places, but no fluid obtained. Early in October, an examination showed that the resonance in the infra-scapular region had disappeared, the signs more nearly approaching those of the other portion of the chest.

The patient was seen by Dr. Loomis at this stage of the case, and the diagnosis of pleuritic effusion made. When, however, the previous history was narrated, he recognized the possibility of a tumor. The chest was again aspirated in several places. No fluid was obtained above; but below the angle of the scapula, and in the region corresponding to that of former resonance, a pint of bloody fluid was obtained. Following the aspiration there was a return of feeble vesicular respiration. The operation was repeated twice, on subsequent occasions, and at each time a less amount of fluid was withdrawn. No change took place in the physical signs till the patient died. Death took place from exhaustion, November 10, 1878.

Autopsy.—The heart was found displaced to the right, the apex remaining as it was during life. Its structure was normal. The whole of the left chest was occupied by a lympho-sarcomatous tumor, seeming to spring from the pleura. It extended about half an inch to the right of the sternum, from the first interspace to the fourth rib. The left lung was compressed against the spine, extending from the root to the diaphragm, and around it was a little bloody fluid. The compressed lung was about the size of a man's hand. Its structure was unchanged; the right lung was normal.

Dr. Polk said, in presenting the case to the Society, he wished to call attention to the difficulty in arriving at a correct diagnosis. He had sketched it, as he found it brought out the elements that had aided him in making a diagnosis. He wished to know from the members of the Society if there were any others, not detected by him, that would have thrown any light upon the case. He wished also to ask the reliance which, in the opinion of the Society, should be placed on the facts that aided him in making a diagnosis:

1. The character of the bronchial sound and the location of the lung being known, the region of the greatest intensity of the bronchial sound.

2. The condition of a free space at the base of the lung posteriorly, as judged by the intensity of percussion and respiratory sounds. Whether increase in resonance and exaggeration of the respiratory sound, in such a location, should be regarded as strong evidence in favor of tumor and against pleuritic effusion.

3. The value of absence of temperature as a contra-indication of pleurisy with effusion.

Dr. Loomis said he saw the case with Dr. Polk, and found it as stated. There was flatness over the left chest, with displacement of the heart. He questioned whether it was possible to make a diagnosis in such a case, unless seen early and before the chest was completely filled. In regard to the value of the elevation of the temperature, as an indication in favor of a tumor and against pleurisy, he was not in accord with Dr. Polk. He believed that there were cases of pleurisy without any appreciable elevation of temperature.

Dr. Polk asked, if the temperature was taken regularly at intervals, would there not be noticed an elevation?

Dr. Loomis thought not necessarily.

Cancer of Breast complicated with Sarcoma.—Dr. Heitzman presented an interesting specimen from a woman giving the ordinary history of cancer of the breast. After extirpation, the specimen weighed eight pounds. The mass showed ulceration at some parts of the surface, on examination by the microscope. There were found evidences of round-celled sarcoma and of true cancer. Dr. Heitzman said the specimen was of interest in showing that scirrhus of the breast may develop sarcoma. Sarcoma occurring in that region was usually benign in character; but, when a development of cancer, it became malignant.

Dr. W. M. Carpenter asked if sarcoma could not change into cancer, as well as the converse, which was found in the specimen presented.

Dr. Heitzman said "No." Cancer was of a higher organization than sarcoma; therefore the tumor might stop short of full development, and turn to sarcoma; but a growth of low development, as sarcoma, did not pass into one of higher organization, as cancer.

Chromidrosis.—Dr. Andrew H. Smith presented specimens of under-clothing showing chromidrosis of different colors in the same patient. They were obtained from a lady forty years of age, who was not suffering from any disease. The sweat from one axilla stained the clothing an orange-color. This was readily removed by washing. That of the other axilla yielded a dark stain, which was permanent.

Dr. Heitzman said that he had frequently seen cases of chromidrosis, but he had not seen different colors in the same individual.

Cardiac Disease.—Dr. Beverly Robinson presented specimens from a patient who died of disease of the heart and kidneys. The autopsy showed that he had tricuspid and mitral regurgitation. During life the heart-murmur was not continuous, and the most interesting feature of the case was that the rational history of the case was of more importance than the physical signs, in coming to a correct diagnosis.

Dr. Smith suggested that active exercise would be of value in bringing out a murmur.

Dr. Robinson said that the patient had no murmur after walking about.

Dr. Peters said that he had found that, when the exercise of walking did not make a murmur audible, going up and down stairs had the desired effect.

Tumor of the Spleen.—Dr. Stimson presented a tumor of the spleen weighing 13 pounds. The woman from whom it was removed had suffered from a sarcoma of the right buttock, and latterly amputation of the thigh was performed for sarcoma of leg. Three months after the amputation the patient died. It was found that the ligature of the femoral artery had become encysted.

Perineal Section.—Dr. Briddon presented specimens removed from a case of stricture of the urethra. One month before death the patient entered the Presbyterian Hospital, suffering from cystitis and stricture of the urethra. He had also Bright's disease. The operation of external perineal urethrotomy was performed, but without good result. The patient began vomiting shortly after the operation, and continued till he died from exhaustion. The autopsy showed evidences of nephritis, cystitis, and numerous false passages in the neighborhood of the bulb of the urethra.

Epithelioma of Rectum.—Dr. Keyes presented a specimen of epithelioma which he had removed from the rectum of a patient. The disease involved the lower part of the rectum, and included the anus. The patient was a woman thirty-eight years old, and had suffered from the disease for two years. Her mother was aged seventy, and suffered from the same disease. The diseased rectum was removed in the way referred to in a similar case at a previous meeting. After the operation was completed, pressure was applied to the sides of the rectum in the following way: A tube surrounded by a rubber bag was inserted, and the bag inflated. Pressure was in this manner employed with the advantage of allowing flatus to escape, thus avoiding distention of the intestines with gas. The wound healed readily.

Epithelioma of Lip.—Dr. Keyes also presented a specimen of epithelioma of lower lip, taken from a man aged ninety. It was necessary to remove the periosteum of the jaw. There were no teeth. The skin was stitched to the mucous membrane of the inside of the jaw, and in this manner the patient was rendered quite comfortable.

Failure to Remove a Needle from the Hand.—Dr. Keyes also presented a fragment of a needle which he had failed to remove from the hand, and which had eventually passed through the sheath of one of the extensor tendons on the back of the hand. The patient came to him stating that she had a needle in the palm of the hand. He found the point of entrance, and made a triangular incision and dissected up the flap. He found a fragment, and removed it, supposing that there was nothing remaining. Some time afterward the patient came back with a swelling on the back of her hand. It was found that the needle was presenting through the sheath of the tendon of the index-finger. Recovery took place without injury to the tendon.

THE THERAPEUTICAL SOCIETY OF NEW YORK.

The third stated meeting was held April 12th, 1878, the president, Dr. Leaming, in the chair.

Dr. Andrew H. Smith read the following report:

Mr. President and Gentlemen:

The Committee on Restoratives, for which, in the absence of the chairman, Dr. Flint, I have the honor to speak, has so recently entered upon the study of the topics before it that no great amount of material is accumulated upon which to base a report. Upon none of the topics have a sufficient number of observations been made to warrant anything like a decisive conclusion as to the value of the remedy proposed; but upon two of them, namely, the use of ether with cod-liver oil, and the use of defibrinated blood for rectal alimentation, we are able to report a slight degree of progress.

Report on the Use of Ether with Cod-Liver Oil.

In 1868, Dr. Balthazar Foster read a paper before the Medical Section of the British Medical Association, on the use of etherized cod-liver oil in phthisis. Referring to the experiments of Claude Bernard, by which it was shown that ether is capable of augmenting the secretion of the pancreas to a remarkable degree, he had reached the conclusion that this discovery opened the way to a great advance in the treatment of phthisis. The defective assimilation of fats being the leading feature in the dyspepsia of phthisis, and this depending upon want of action of the pancreas, it was a clear inference that any agent which would increase the pancreatic secretion would be a valuable adjunct in the treatment of these cases. Moreover, Bernard found that ether promoted absorption independently of the emulsifying action of the pancreatic juice, and thus a double aid was to be expected from its use. Accordingly Foster administered ether with cod-liver oil to a large number of patients, and preserved careful notes of the results. These results more than justified his expectations, and apparently ought to have led to at least a very general trial of the treatment. But ten years have passed since his paper was published, and only an occasional reference has appeared in the journals, European or American, to this use of ether. Evidently the matter has not been brought sufficiently before the profession, or the success attained by Dr. Foster has not been attained by others. It therefore seemed desirable that more experience upon this point should be accumulated, and accordingly it was selected as one of the subjects for observation by this committee.

The shortness of the time over which these observations extend does not allow of any conclusion as to the result, upon the progress of the disease, of this method of administering the oil, as compared with others, even in the limited number of cases of which we have reports; but, so far as the reports go, they have a bearing upon the question of the utility of ether to produce tolerance of the oil, in cases in which the plain oil, or the various emulsions or soaps in common use, can not be borne. But even in this there is a source of fallacy, which was clearly pointed out by Dr. Squibb, at the last meeting of the committee. It is that the intolerance of the oil depends, in many cases, upon a slight degree of rancidity, which, in the first place, excites disgust by the offensive taste and smell, producing nausea if not actual vomiting, and, in the second place, acts as an irritant to the intestinal canal, provoking diarrhœa. Now, ether effectually prevents rancidification, and it becomes a question whether, at least in some cases, the good effects of the ether may not be ascribable to this property. That this is not so in every case, however, is shown by the fact that the purest oil, without a trace of rancid taste or odor, is known to have been employed in some of the trials.

Material relating to this topic has been received from Drs. Hudson, Kinnicutt, Bayles, Hanks, and Douglas.

Dr. Hudson presents 14 cases.

Case I.—A female, aged thirty. Phthisis in first stage, uterine disease, and gastric disturbance. Was ordered cod-liver oil, but after a trial of two days it was found to increase so much the gastric disturbance that its use was abandoned, and hydrochloric acid was administered. After 6 days the gastric disturbance had disappeared. ℥ ss cod-liver oil, with ♏xx ether, three times a day, was then given, and was perfectly well borne, and the condition of the patient improved.

It is to regretted that, in this case, a trial of the plain oil was not made after the gastric symptoms had been relieved.

Case II.—Female. Phthisis in third stage. Has never been able to take cod-liver oil, either plain or in emulsion. Was ordered half an ounce with 20 minims of ether three times a day. Nine days later she was taking the oil "splendidly," to use her own expression, and was being benefited by it.

Case III.—Female. Phthisis in second stage; has been coughing for eight years. Cannot take cod-liver oil. Half an ounce with 20 minims of ether three times a day ordered, and well borne. No nausea.

Case IV.—Female. Phthisis in third stage. Ordered half an ounce of oil, with 20 minims of ether. Patient was able to take only one dose, which was vomited, and the nausea continued until the following day. Oil discontinued, and chalybeates and bark ordered. Eight days after, she was able to take the pure oil.

Case V.—Female. Phthisis, commencing second stage. Oil, half an ounce, ether, 20 minims, three times a day. Well borne, and patient improving.

Case VI.—Female. Phthisis, third stage. Cannot take oil. Has tried several times. Ordered the oil and ether, which were well borne, and were followed by improvement.

Case VII.—Female. Phthisis, second stage. Has tried to take oil, but was obliged to stop on account of nausea. Ordered to take the oil and ether half an hour after eating, and was put upon nux vomica. Bears the oil splendidly, and up to this time, four weeks after beginning the treatment, she has continued to improve.

Case VIII.—Female. Phthisis, in beginning of second stage. For past two years has tried to take cod-liver oil, but has been able to bear only teaspoonful doses twice a day, for a short time, and was then obliged to discontinue it until nausea ceased; but, persisting, has taken 5 bottles of pure oil, always before meals. Has never been able to take oil in emulsion. Has always had a constipated habit of the bowels.

After the action of a purge, was ordered cod-liver oil ℥ ss and ether ♏xx, to be taken half an hour after each meal. Seven days after it is noted that she has some nausea from the oil; but has taken it an hour and a half after eating, instead of half an hour. This was changed, and seven days later she was taking the oil without any gastric disturbance.

Case IX.—Female. Phthisis in first stage. Had tried pure cod-liver oil, but was nauseated. Put upon the oil and ether, which was well borne.

Case X.—Female. Phthisis in the beginning of second stage. As an experiment the following mixtures were successively tried: 1. Cod-liver oil and lime-water; 2. Cod-liver oil and chloric ether; 3. Cod-liver oil and sulphuric ether. The first and third were equally well borne; the second not so well.

Case XI.—Female. Phthisis, third stage. Repetition of the experiments described in last case. All the mixtures nauseate. Thinks she bears that with lime-water best. Tolerates the mixture with ether better than the plain oil.

Case XII.—Female. Phthisis in third stage. Cannot bear either the mixture with lime-water or that with ether.

Case XIII.—Female. Phthisis in third stage. Bears the mixture with ether better than the pure oil or the mixture with lime-water.

Case XIV.—Female. Phthisis in third stage. Bears the pure oil better than the mixture with ether.

Dr. Kinnicutt contributes four cases, all occurring in private patients. He presents them merely as bearing upon the question of greater tolerance of the oil with ether.

Case I.—W. R. Bronchial catarrh. Cod-liver oil, in teaspoonful doses, was constantly followed by eructations, with taste of the oil, for one or two hours after its administration. Spiritus ætheris, ♏x to each dose, immediately and wholly relieved him of these symptoms; and the oil, in larger doses, was taken easily, and with benefit.

Case II.—Mrs. G. Anæmia, trigeminal neuralgia during lactation. The patient was unable to take cod-liver oil in any form, without its producing distressing nausea and other symptoms of imperfect assimilation. Ordered an etherized emulsion of cod-liver oil, which was taken with ease and marked benefit. Its assimilation was further shown by an increase in weight.

Case III.—February, 1877. Mr. B. Inherited predisposition to phthisis, obstinate cough, with some loss of flesh and strength, of two months' duration. Careful examination of the chest failed to give any positive physical signs of localized trouble. He had been taking iron and quinine without apparent benefit. Ordered an etherized emulsion of cod-liver oil, in tablespoonful doses, three times a day; the iron to be continued. The patient immediately began to improve in all respects, gaining nine pounds in the succeeding four weeks. His cough gradually disappeared, and he has regained and remained in excellent health up to the present date (March, 1878). He had previously attempted to take cod-liver oil, without success, on account of the nausea produced.

Case IV.—J. R. The patient has been suffering from a fibroid form of phthisis for the past two years. He has an exceedingly delicate digestion, and is unable to take cod-liver oil in any form, except in combination with ether, which he apparently easily assimilates.

The formula employed by Dr. Kinnicutt contains ʒ iij of spirit of ether in ℥ viij of an emulsion containing fifty per cent. of oil.

Dr. Bayles is impressed with the conviction that the full value of the ether is obtained only when it is given a short time after the oil, say from fifteen minutes to half an hour. He communicates seven cases in which ether, given in this way, enabled the patient to take oil readily; whereas, without the ether, it could not be tolerated.

Case I.—Male. Debility from protracted suppuration of bone. An emulsion of cod-liver oil, with the hypophosphites of lime and soda, was prescribed. Nausea and distressing emesis followed each dose as a rule; or, if the oil was retained, it caused "heartburn," brash, and other unpleasant dyspeptic symptoms. The *plain oil* was then tried, and was borne with fewer disagreeable symptoms. Still the discomfort from the use of the oil demanded some aid to its digestion, or that it be discarded altogether. The purest oil was then administered, in doses of ʒ ij of the oil, and ♏x, and afterward ♏xx, of ether. sulph., three times a day. Though this combination was continued for a fortnight, by being varied in the relative quantities of each agent, it was found to be no aid to either the retention or the assimilation of the oil.

After about a fortnight the oil was administered in ʒ ij doses, three times a day; and, whenever it was not rejected by the stomach in twenty minutes, spiritus ætheris sulphurici comp., in ʒ j doses, was administered in a little water.

It was soon found that this relieved the stomach of irritation; it also helped in the digestion of the oil.

The oil was used for several weeks thereafter with the aid of ether, given as above stated, and was attended with satisfactory results.

Case II.—Female. Chloro-anæmia. Pure cod-liver oil was prescribed, but after a short time disagreed. A variety of combinations with tonics, etc., were tried, with the hope of overcoming the difficulty, but were unsuccessful. Half a drachm of spirit of ether given *with* each dose of oil also failed. When given, however, half an hour after the oil, the latter was well borne, and the treatment was continued for several weeks.

Case III.—Chronic bronchitis, complicated with asthma. Cod-liver oil, emulsified with hypophosphites, was given; but there seemed to be no assimilation until the spirit of sulphuric ether was given in half-drachm doses in water, half an hour after each dose of the oil. The advantage of giving the ether in this way, instead of with or before the oil, was shown by repeated experiments.

Case IV.—A child with hæmorrhagic diathesis, very much debilitated from constantly-recurring epistaxis. Cod-liver oil fairly well borne for a few days, then produced nausea. Associated with the hypophosphites, which at first seemed to make the oil tolerable to the stomach, it soon became so offensive as to be the horror of the child's life. Plain oil with ether gave more distress than the oil without the ether. After a while a highly aromatic mixture, composed principally of ether. sulph., was prescribed, which, when taken *after* the dose of oil (say in from ten to twenty minutes), quieted the stomach and allowed the oil to be assimilated. Great benefit followed this course.

Case V.—A child with marasmus, reduced to the last degree of emaciation. Cod-liver oil, which could not otherwise be borne, was used with decided success when followed in the course of fifteen minutes by an aromatic mixture containing 20 minims of ether.

Case VI. Female, twenty years of age. Phthisis. Took plain oil for a while, but found that it impaired the appetite, and gave it up. Tried also an emulsion with hypophosphites, which produced almost constant nausea. Ether, given after the oil, enabled the latter to be taken with comfort, and with considerable benefit.

Case VII.—Scurvy, contracted during a whaling voyage. Could take only the smallest doses of oil in emulsion twice a day. By the aid of ether, given half an hour after the oil, four larger doses were taken daily, and very rapid improvement followed.

At my suggestion, Dr. O. B. Douglass gave ether with cod-liver oil to a woman in the third stage of phthisis, who could not take either the plain oil or an emulsion. The mixture with ether was perfectly well borne, causing no discomfort whatever.

Dr. Hanks reports the following three cases:

Case I.—Male. Bronchitis, following pericarditis. Was ordered cod-liver oil, which was tolerated, but with some difficulty. Ether was added, and the patient took the oil with much less repugnance.

Case II.—Female. Great debility from protracted mastitis. Could not take cod-liver oil at all until spirit of ether was added, about 20 minims to each dose, after which the oil was well borne.

Case III.—Female. General debility and nervous depression. Cod-liver oil was rejected when given plain, but was perfectly well tolerated when spirit of ether was added.

I have myself employed the mixture with ether successfully in one case in which the stomach rejected meat that was slightly fat. Plain oil was not tried in this case; but Scott's emulsion with hypophosphites was well borne.

In a second case I prescribed the etherized oil for a gentleman with very delicate digestion, but he was unable to take it on account of eructations which persisted through the whole day.

To sum up, our report covers 31 cases in which ether was given in connection with cod-liver oil. In 26 of these cases the combination was well borne; in 5 of them it was not well borne. In the 26 cases in which the oil with the ether was well borne, it is noted in 24 cases that either pure oil or an emulsion of oil had been tried, and had disagreed.

In one case plain oil was found to agree better than the mixture with ether, and in another case the etherized oil did not answer so well as an emulsion with hypophosphites. The ether was given *with* the oil in 22 cases; after the oil—15 to 30 minutes—in 9 cases. Of these 9 cases, 3 had tried, unsuccessfully, to take the ether *with* the oil; but exhibited perfect tolerance when the ether was given *after* the oil.

The results in this limited number of cases seem to sustain the conclusion of Dr. Foster in a remarkable manner. But it is very important that we should have a larger number of cases, extended over a longer period of time, and bearing upon the question of the better assimilation of the oil, and therefore of its greater ultimate usefulness, as well as upon its greater present tolerance. And it is especially important that unsuccessful cases should be reported as invariably, and as carefully, as those which support the claims of the medicine.

Your committee are already engaged in collecting material for a second report, to which this one is only preliminary. The importance of the subject to every medical man, specialist as well as general practitioner, is such that we confidently expect that the society at large will aid us with their observations to make our report full and conclusive.

Provisional Report upon the Use of Defibrinated Blood for Rectal Alimentation.

The material at hand for this report is extremely meagre, consisting merely of two experiments by myself, and six cases—three by myself, two by Dr. Douglass, and one by Dr. Hadden. Still the results which have been attained are sufficiently favorable to give encouragement for a further trial of the treatment, and it is with the hope of inducing the members of the society at large to give it a thorough test that the committee make this report.

Experiment I.—A healthy man, aged forty. Nine ounces of defibrinated bullock's blood were injected into the rectum at 11 p. m., the bowel having been previously cleansed by an enema. At 8 a. m. of the following day the contents of the rectum were voided, and consisted of less than two ounces of a semi-solid substance resembling currant-jam. When this was examined under the microscope, it was shown to contain a large proportion of fecal matter and granular detritus, but scarcely a blood-corpuscle was to be recognized.

Experiment II.—This experiment was a repetition, two days later, ot the first, and was attended with precisely the same result.

Case I.—To a female patient, aged forty-one, suffering from extreme irritability of the stomach, consequent upon septicæmia from a wound in the neck, one ounce of beef's blood was administered by the rectum every hour during the day, and two ounces every two hours during the night, for four days, beginning December 25th, 1877. The pulse ranged at first from 116 to 132, and the temperature from 101° to 105°. Two ounces of a mixture of quinine, brandy, and milk were also injected every two or three hours. There were from two to four passages from the bowels in each twenty-four hours, aggregating, on an average, eight ounces in bulk. No food was given by the mouth; but iced champagne, to the amount of about eight ounces in the twenty-four hours, was taken into the stomach. The patient was very fully nourished, and had no desire whatever for food. After four days the injections were gradually diminished in frequency, and stomach alimentation was resumed in like proportion.

The result of this observation was that, of twenty-four ounces of blood, administered daily, more than sixteen ounces were absorbed.

Case II.—Patient with tubercular laryngitis, great dysphagia, preventing the digestion of sufficient food. Ordered enemata of beef's blood. After the first day they produced general abdominal pain, and were speedily rejected, so that their use was discontinued. Patient stated that his bowels had always been extremely sensitive, and that the slightest cause would bring on colic and diarrhœa.

Case III.—Mrs. S., aged twenty-six. Was confined three months ago, and suffered from protracted hæmorrhage, extending through several weeks. Came under my care March 16th. Is anæmic to the last degree. Face tallowy white, lips almost bloodless. Pulse ninety-six and very small. Can walk but a few steps at a time. Has not been down-stairs since her confinement. Complains of shortness of breath, giddiness, and mental confusion. Is very despondent. Has an absolute disgust for solid food, and vomits it if taken. Has been living principally upon beef-tea, milk, and lime-water.

Pepsin and simple bitter tonics were prescribed with little if any benefit. On the 19th of March began the use of enemata of blood. Four ounces were taken three times a day. Patient retained the injections, the bowels on one occasion not being moved for forty-eight hours.

There was very prompt improvement in strength; within a week she was able to go out-of-doors and walk several blocks. The lips and conjunctivæ regained their color, the stomach became less irritable, the vertigo disappeared; and, in less than three weeks, the only traces of her illness remaining were some shortness of breath when going up-stairs and occasional nausea after a full meal.

On several occasions the use of the blood was omitted for a short time, and she immediately felt a decline of strength and spirits.

This patient had been under the care of a very intelligent practitioner for three months before I saw her, and it is fair to presume that the usual means for correcting anæmia had been employed. While under my care she had very little treatment except the enemata, and it seems to me that her improvement is to be attributed chiefly to their use.

Case IV.—Female. A patient of Dr. O. B. Douglass. Phthisis in the third stage. Extreme irritability of the stomach, vomited everything taken. Enemata of blood, five ounces three times a day, were ordered, at my suggestion, early in March, and have been continued until the present time. Cod-liver oil with ether was begun at the same time, and was well borne by the stomach. The patient, who was unable to rise from her bed, now sits up and walks about the room, coughs less, and feels in every way much better. What share the oil and the blood respectively have had in her improvement it is difficult to determine.

A noteworthy fact in this case is that, after the enemata had been about three weeks in use, the stools, which before had been of a red color, lost all traces of blood, and resumed the color which they had before the blood was given; thus indicating a very complete absorption of the injected material.

Case V.—Female. Patient also of Dr. Douglass. Phthisis in first stage. Has used the blood since early in March, and retains it well. At first she improved under its use, but of late has remained about stationary.

Case VI.—Female. Patient of Dr. A. Hadden. Cancer of the stomach. *For fifty-four days she was nourished exclusively by the rectum.* During one week of this time, at my suggestion, the injections consisted of defibrinated bullock's blood, with occasionally a little brandy and milk. At the end of that time an increase of the stimulant was deemed necessary, and milk was substituted for the blood, as being a more convenient vehicle for the brandy. The blood answered completely the purpose for which it was employed, but the family objected to its use on account of the extreme fetor of the dejections. This is the only case in which this has been observed.[1]

In executive session the following members were elected: Drs. J. C. Shaw, D. M. Stimson, W. T. Bull, V. P. Gibney, E. D. Keyes, T. E. Satterthwaite, and N. M. Shaffer.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, May 21, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. Pallen, after the relation of three cases of pseudo-pregnancy, read a paper on Prophylaxis in Pregnancy, directing attention to the various accidents and abnormal conditions to which the pregnant woman was liable, and the means for their prevention or relief.

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[1] Defibrinated blood will be delivered at patients' houses by D. Harrington & Co., First Avenue and 43d Street, and by W. Blakeman, Manhattan Abattoir, foot of West 34th Street. If kept from the air, and in a cool place, it remains fresh for two days.—A. H. S.

Dr. Thomas related the history of a case of laparotomy for extra-uterine pregnancy performed on a patient who had been pregnant twenty-two months. At the end of the ninth month she had had severe labor-pains, but without effect, and abdominal pregnancy was suspected by her physician. When seen by Dr. Thomas she was exceedingly weak, with a pulse of 140 and scarcely perceptible, gastric derangement, and a red and glazed tongue. There was a very fetid purulent discharge from the navel and from the vagina, and, notwithstanding the most careful management, she was steadily growing worse. The operation was done three weeks ago, and the remains of the fœtus, with a quantity of fetid pus, removed. The patient had done well, and was rapidly gaining flesh and strength.

Dr. Noeggerath exhibited a number of microscopic specimens, showing an element, hitherto undescribed, which he had found in ovarian cysts. He had not completed his investigations, but promised to report further on the matter at a subsequent meeting.

Dr. E. G. Janeway, a guest of the Society, related by request the case of a woman who had a miscarriage at about three months, and three days afterward had great swelling and tenseness, with marked crepitation of the arms. Incisions were made into the biceps, and gas escaped in jets. The forearm was also incised freely, but there was decomposition of the muscles themselves, and the patient died April 17th, six days after the miscarriage. The only lesion shown by the *post mortem* was the decomposition of the arms and the uterus. The arteries and veins were examined carefully, but there was no obstruction in them. The walls of the uterus were gangrenous, and the cavity full of gas. The spleen and liver and the right ventricle of the heart also contained gas. The lungs were normal. The opinion was that death of the arms occurred as a consequence of the condition of the uterus.

Dr. Noeggerath said he had reported a similar case, but it had a different explanation. The uterus was bound down so firmly that it could not contract.

Dr. Lusk said the uterus in Dr. Janeway's case was not distended during life.

Bibliographical and Literary Notes.

ART. I.—*Transactions of American State Medical Societies.*

1. "Transactions of the Medical Society of the State of Pennsylvania." June 13, 1877. 8vo, pp. 389–830.
2. "Transactions of the Medical Association of the State of Missouri." April, 1877. 8vo, pp. 81.
3. "Transactions of the Medical Society of the State of New Jersey," 1877. 8vo, pp. 270.
4. "Transactions of the Medical Society of the State of Wisconsin," 1876. 8vo, pp. 149.
5. "Transactions of the Kentucky State Medical Society." April 3, 4, and 5, 1877. 8vo, pp. 216.
6. "Proceedings of the Connecticut Medical Society," 1877. 8vo, pp. 180.
7. "Transactions of the Thirty-second Annual Meeting of the Ohio State Medical Society." June 12, 13, and 14, 1877. 8vo, pp. 200.
8. "Transactions of the Indiana State Medical Society," 1877. 8vo, pp. 169.
9. "Transactions of the Medical Association of the State of Alabama," 1877. 8vo, pp. 190.
10. "Transactions of the Medical Association of Georgia." April 18, 19, and 20, 1877. 8vo, pp. 198.
11. "Transactions of the State Medical Society of Arkansas, at its Second Annual Session," 1877. 8vo, pp. 53.
12. "Transactions of the Michigan State Medical Society," 1875. 8vo, pp. 272–354.
13. "Transactions of the Medical Society of North Carolina," 1877. 8vo, pp. 88.

THE Medical Society of the State of Pennsylvania succeeds in presenting a good-sized volume, although it contains comparatively few scientific articles—the bulk being largely made up of reports of county societies, etc. Dr. S. P. Kiffer, in his "Address in Obstetrics," makes puerperal convulsions his theme. He advocates the employment of the lancet more thoroughly and universally than it seems to be at present employed. Dr. H. Lenox Hodge's "Address in Surgery" is especially interesting, and abounds in research. Dr. John Curwen delivered the "Address in Mental Disorders," and also made "An Appeal for the Insane Poor." Dr. P. D. Keyser writes "On Some Forms of Inflammatory Diseases of the Eye being caused by Defects in Refraction and Accommodation." Dr. Benjamin Lee writes on "The Diagnosis of Psoas Abscess," and gives the "Address in Hygiene." Dr. John H. Packard reports an interesting case of "Urethral Fistula Treated by means of the Elastic Ligature." Dr. W. R. Hamilton suggests "A Modification of Syme's Amputation at the Ankle-Joint." Many of the contributions from the several county medical societies are valuable.

Some very fair papers appear in the "Transactions of the Missouri Medical Society," showing that some efforts at progress are being made by the profession in that State.

In the "Transactions of the Medical Society of New Jersey" are included, in addition to the Reports of District Committees—much of which is of a valuable character—two scientific essays—one by Dr. A. W. Rogers on "The Care of the Skin as a Means of Prevention and Cure of Disease," the other by Dr. E. J. Marsh, both of Paterson, on "Hay Fever, or Pollen Poisoning."

The "Transactions of the Wisconsin Society," although a small volume, contains nineteen articles, for the most part of practical merit. Dr. N. Senn, of Milwaukee, reports an interesting "Case of Glandular Sarcoma of the Neck," illustrated with a plate.

The Medical Society of Kentucky has issued a small, but a very creditable bound volume, containing a number of good papers. Dr. W. Talbot Owen, of Louisville, delivered a "Criticism of Dr. Ely McClellan's Article on Cholera." He takes the ground that cholera is not portable, and that it is of malarial origin. The arguments adduced do not strike us as by any means so conclusive as they seem to the author himself.

The most of the Connecticut Transactions is taken up with the "Report of Committee on Matters of Professional Interest." There are but four essays, including the address of the President, which is on "Malarial Fever in New England." Nearly all the articles are very good.

There are several good papers in the bound volume published by the Ohio Society—one especially interesting is that of Dr. S. S. Piqua on "Milk Sickness."

The Indiana Society publishes a handsome bound volume containing plenty of papers, so far as numbers are concerned. While the most of them are commonplace and contain nothing new, there are a few good ones, well worthy of being published. One paper, on "Dilatation and Contusion of Blood-vessels and Tubular Structures," by Dr. R. E. Haughton, of Indianapolis, is the product of considerable physiological research. Dr. John Chambers writes an article on "Gordon's Method of Treatment of Colles's Fracture of the Radius." Neither the author, nor those who participated in the discussion, seem to have been familiar with the discovery of Dr. Moore, of Rochester, N. Y., whose article was published in the *Medical Record*, April 1, 1871. Severe cases are usually attended with dislocation of the ulna; and, when it is reduced, there is little difficulty in keeping the fragment of the radius in place. Our own experience fully corroborates that of Dr. Moore.

Much of the space in the Alabama Transactions is taken up with other than strictly scientific matters. The most elaborate of the essays is "Yellow Fever in Relation to its Cause," by Dr. Jerome Cochran, of Mobile. The author believes in the germ theory, and also that the disease is directly communicable from one person to another. Dr. J. S. Weatherly, of Montgomery, in an article on "syphilis," attributes scrofulous diseases, consumption, diseases of the spine, neuralgias, etc., to the effect of either proximate or remote hereditary syphilis. While hereditary syphilis may induce a condition of constitution favorable to the development of the affections above named, it is certain that bad hygienic surroundings in a variety of ways may induce them where no syphilitic taint can be traced. Dr. M. Kassowitz, of Vienna, in "The Hereditary Transmission of Syphilis," a translation of which has recently appeared in the pages of this JOURNAL, does not accept the view that these diseases are the *direct* result of inherited syphilis.[1]

The "Transactions of the Georgia State Society" contains many papers and reports of cases which are very valuable—their number and varied character will preclude special comment of particular ones. The society seems large and strong.

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[1] *Vide* JOURNAL for June, 1878.

The proceedings of the Arkansas Society contains no essay.

The address of the President of the Michigan State Society, Prof. R. C. Kedgie, in which is discussed Ozone in its Relation to Human Health, is very excellent. Dr. Eugene Smith, of Detroit, reports a "Series of One Hundred Cases of Extraction of Cataract by Graefe's Peripheric Linear Method;" Peter Stewart, M. D., reports a case of "Supernumerary Testicles;" and Dr. J. P. Stoddard gives his "Observations on the Use of Permanganate of Potassa."

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Reports on the Progress of Medicine.

QUARTERLY REPORT ON LARYNGOLOGY.

No. XIV.

By GEORGE M. LEFFERTS, M. D.,

CLINICAL PROFESSOR OF LARYNGOSCOPY AND DISEASES OF THE THROAT, COLLEGE OF PHYSICIANS AND SURGEONS, N. Y.; LARYNGOSCOPIC SURGEON TO ST. LUKE'S HOSPITAL, ETC.

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1. Dr. Browne's work, which was announced as being in press some time since, has but just appeared, and a few early copies have found their way to this side of the water. It may here be briefly stated that the book is all that it was expected to be, coming from so distinguished an authority, and can be warmly recommended to all those whose studies and practice tend to the use of the laryngoscope and rhinoscope. The printer and binder have made the book an elegant one in appearance; while its literary merit and the addition of excellent plates go to make up one of the most useful and attractive works that laryngoscopic literature has yet produced. It will be considered in detail hereafter.

2. The very complete tables of operations and statistics of cases contained in the work of Bruns on laryngotomy for the removal of intralaryngeal growths, based upon the histories of cases reported in various journals, extending over a long period of time, and the collection of which alone shows a most untiring energy, constitute it a very valuable work for purposes of reference, and we may turn to it with confidence, as the last, perhaps best, certainly most complete, essay and source of informa-

tion on the above subject. The general deductions drawn by the author commend themselves by their clearness and fairness, while, finally, the chapter on the removal of laryngeal growths, by an opening through the crico-thyroid membrane, will be read with much interest.

4. Browne indorses iodoform as a therapeutical agent, and recommends it as a local application in subacute and chronic inflammations of the naso-pharynx. He applies it in two ways, first as an ethereal solution (1 to 10 or 12) with a brush, sponge, or with cotton-wool, the throat being first treated, and then the remedy applied to the nasal passages. Only momentary discomfort is produced during the evaporation of the ether. After the application, which should be repeated twice or thrice a week, the mucous membrane appears paler and is covered with a thin film of iodoform. After about six repetitions, the swelling of the membrane will have been much diminished. The second method, consisting in the admixture of the remedy with vaseline, and its application by means of a brush, may be intrusted to the patient. This may be done night and morning, or on the alternate days of the stronger application. Five to eight grains of iodoform, with sufficient ether to dissolve it, may be added to one ounce of vaseline. Mr. Browne acknowledges his indebtedness to Dr. R. C. Brandies, of Louisville, Kentucky, for the suggestion of the remedy.

6. Dr. Cohen directs attention to a mechanical factor in infantile spasm of the larynx, which was the immediate cause of death in two cases under his care, and which he is inclined to believe may have been the cause of death in other cases.

In the summer of 1867 he had under professional care a scrofulous male infant, between two and three years of age, with protracted laryngismus stridulus, the suffocative paroxysms, as described by the mother, being unusually intense. On one occasion, an intense paroxysm occurred in his presence, and, as it failed to yield to cold water dashed upon the face and neck, or to ammonia held in front of the nostrils, he plunged his forefinger deep into the child's throat and felt the epiglottis so forcibly drawn down by the spasmodic action of the aryteno-epiglottic muscles that its free edge had become wedged between the posterior face of the larynx and the wall of the pharynx, occluding the larynx completely. Carrying the finger to the left side of the larynx, he found it comparatively easy to free the epiglottis from its incarcerated position; and, with the ensuing deep inspiration of air, the impending asphyxia was averted. The nature of the difficulty was explained to the mother, who was instructed in the manipulation necessary to overcome it. The constitutional remedies and other measures, instituted in the hope of subduing the disposition to spasm, were unavailing; and the child finally died, some weeks later, in a paroxysm similar to the one described.

The second case occurred during the spring of 1877, in a scrofulous male infant, nineteen months of age. He had the opportunity of verifying the same sort of incarceration of the epiglottis from spasmodic action on several occasions, one of which was in the presence of an esteemed colleague during a consultation held as to the propriety of performing tracheotomy, in view of the frequent recurrence of the paroxysms. Unfortunately, it was determined to defer the decision for twenty-four hours in order to test the efficacy of large doses of bromide of potassium; and, shortly before the early-hour fixed for the visit on the following morning, the child died in a paroxysm, which the mother was unable to overcome by manipulation, although she had previously succeeded in elevating the epiglottis in several paroxysms.

He is inclined to believe, therefore, that the spasm of laryngismus affects the aryteno-epiglottic muscles, in some instances at least, as well as those muscles which close the glottis; and that the incarceration of the epiglottis, continuing after relaxation of the spasm, may be an immediate cause of death. In undoubted cases of this kind, tracheotomy may be absolutely indicated, as necessary to avert asphyxia in a recurring paroxysm of spasm.

7. We fail to see anything very new or important practically in the *new laryngoscope* of Cadier. Of making new instruments and of modifying old, there is no end.

8. This paper consists mainly of various formulæ for the preparation of the carbolized lotions, etc., in which the author so firmly believes, for the treatment of the ulcerations and œdema of laryngeal phthisis. Some illustrative cases are given in more or less detail, and the conclusions at which the writer has arrived will be found at the end of his article.

9. Dr. Dawosky lays down the proposition that in the treatment of diseases of mucous membranes, where external applications are possible, nitrate of silver is a remedy useful before all others. Brought into contact with a mucous surface, it coagulates the mucus; and, if applied in excess, it unites chemically with the tissue of the membrane beneath, forming a more or less thick crust. If the nitrate be applied to an actively, secreting mucous membrane, it first irritates the distended blood-vessels and capillaries, and also stimulates their contractility, so that they unload themselves and cause an onward flow of the blood accumulated in them. Hence it becomes necessary, to the efficient use of nitrate of silver, to form an accurate estimate of the quantity to be applied in each case, and also that it should be applied by the physician himself. In chronic throat-catarrh, we have a congested condition of the mucous membrane, and a consequent abundant secretion, with swelling and redness occurring in unequally distributed patches. If these patches become denuded of epithelium, they appear yet more deeply reddened. In such cases, the nitrate should not be applied otherwise than in a solution of definite strength. It is convenient to have a concentrated solution, which may then be diluted with water or glycerine. After applying it with a brush to the affected parts, these should be painted over with a solution of glycerine, and the application is repeated so long as there is any swelling, unhealthy secretion, etc. At the same time, the food and drink taken should be cold, and smoking discontinued. Should the larynx also be affected, it should be brushed with the caustic solution, of a strength of one to eight, repeated three or four times a day. A large number of cases of laryngeal catarrh, thus treated, have uniformly yielded the best results.

10. Doleris's work teaches us nothing new concerning tuberculosis of the larynx, but his views in relation to certain well-known forms of laryngeal disease are so original and peculiar that a short *resumé* of them will not be devoid of interest.

According to his statements, tuberculosis of the larynx appears under four forms: 1. The diffuse variety (embryonic cells, which localize in the lymphatics, walls of the blood-vessels, and interstitial tissue), giving rise to swelling of the mucosa, and in many instances being the primary cause of stenosis of the glottis. They may remain for a time quiescent, undergoing no change, but never fully retrograde. 2. In the form of infiltrations (analogous to the first variety, but with a decided tendency to coalescence); their principal locality is about the vessels, in the interior of the lymphatics and their ducts, as well as in the immediate neighborhood of the latter. They resemble granulations but without their definition, and undergo cheesy degeneration, giving rise to the deeper ulcerations of the mucous membrane. 3. In a circumscribed form (miliary granulations) the nodules of which may lie deeply or superficially; the first in the interstitial tissue are of variable size and coalesce, hardly ever with ulceration at their seat; the second (regarded alone by the writer as well as others as tubercle) rapidly degenerate, leaving flat ulcers of the mucous membrane, which run together and form irregular plaques with flat edges and a brownish base (!). 4. In a diffuse connective-tissue variety (sclérose), rarer than the preceding forms, but which may occur with them or give rise to their development, and later leads to stenosis of the larynx.

The writer, if we understand him, regards all possible ulceration, superficial, deep, and perichondrial, as tubercular, recognizing, or at least acknowledging, no difference between inflammatory and tubercular cell infiltration. Still further, he pleads for the tuberculous nature of œdema of the glottis, at least that form in which, besides serous, a cell infiltration of the tissues is shown.

The same freedom of view is shown in the illustrations to his paper, which present various forms of ulceration—difficult of recognition—and a large cicatrix of the anterior commissure of the larynx. (Fig. 1.)

12. At a meeting of the Medical Society in St. Petersburg (*St. Petersburger medicin. Wochenschrift*, December 29, 1877), Dr. Erichsen reported a peculiar case of fatal hæmorrhage. A strongly-built countryman, aged eighteen, was admitted into hospital on the second day of an attack of phlegmonous angina. On the second day after his admission, an abscess burst into the fauces, and discharged normal pus. It appeared to be going on perfectly well, when on the sixth day there was a slight bleeding from the abscess, which was easily arrested by plugging. At the end of twenty-four hours, however, arterial hæmorrhage occurred, and proved fatal in a few minutes. At the necropsy, the abscess cavity, which was as large as a hen's egg, was found filled with fresh blood-clot; the outer side of the abscess was in contact with the internal carotid artery, the wall of which here presented a circular perforation, half a centimetre (about one-fifth of an inch) in diameter. At the point of perforation, there was a funnel-shaped dilatation from within outward. There was no sign of disease in any other part of the vessel. The reason of the perforation was obscure; normal pus would be scarcely capable of destroying so firm a tissue as the wall of the carotid in nine days. Dr. Wolff suggested that there might have been a secondary abscess in the sheath of the vessel, which burst into the abscess cavity of the tonsil; but no evidence of this was afforded by the necropsy.

17. Dr. Fritzinger, who is evidently a warm advocate of the use of guaiacum in the treatment of quinsy, gives the results of his further experiences with the drug. (His first paper on the subject will be found in the *Philadelphia Medical and Surgical Reporter*, 923.) At the time of this communication, quinsy headed the category of complaints amenable to the specific influences of this drug, but now all its neighboring congeners—sore throat of all kinds—have been added to the list. He says that it is indeed surprising to see the rapidity with which the congested, yet flabby, uvula and soft palate will regain their normal tonicity, and how quickly the angry redness and tumefaction of the parched and painful mucous membrane will disappear when subjected to the action of this medication. Referring to the use of guaiacum in follicular tonsillitis, he says: "If by follicular tonsillitis is designated that form in which the glands are partially or wholly covered with a tenacious white secretion, caused by morbid action or degeneration of the mucous follicles, then it is a matter of surprise that a remedy acknowledged as so undeniably efficacious should be so ignored, when it is a well-known fact that, in the great majority of cases, this secretion is pathognomonic of the severity of the complaint, and characteristically an index of the rapidity with which morbid action will take place in the parenchyma of the gland. Quinsy is a distinct disease, and will always prove phlegmonous, if not arrested promptly by proper

treatment. Simple angina, with slight incidental swelling of the tonsils, should not be diagnosed and treated as quinsy, and then be claimed as a cure effected by the general routine manner of treatment.

"By contact guaiacum has the quality of causing the viscid secretions to become more consistent, and thus facilitate their removal, either by expulsive efforts of the patient or by gargles. Although this primary action locally is most unquestionably highly beneficial, it is owing to its secondary physiological effect upon the engorged capillaries, ramifying in the body of the gland, that the resolution is immediately accomplished. It is unquestionably owing to these peculiar properties of coagulative astringency locally, and the tonic action upon the walls of the over-distended capillaries, giving them force to expel the superabundant blood they contain, that gives guaiacum its specific virtues in curing quinsy. As there are thirst and fever, and dryness and burning of the throat, the addition of nitre and potassium chloride will meet the indications, and will modify the formula so as to be more agreeable for the patient. The following is a combination that has been used quite extensively for several years, and will be found as agreeable to take as any:

℞. Potass. chlor.	ʒj.
Spts. æth. nit.	ʒiv.
Tr. guaiac.	ʒvj.
Syr. aurant. cort.	ʒvj.

Sig. A teaspoonful every two hours, in water.

"This should be taken in about a tablespoonful of water, or a sufficient quantity to allow the warming and constringent effect of the guaiacum to be felt in the act of swallowing, and it is desirable that this should be done slowly. In case the bowels should move too freely the dose should be diminished; and as the disease ameliorates it should be administered at longer intervals.

"If there is permanent enlargement, of not too long standing, the application of a solution of tannin in tincture iodine and glycerine, applied to the gland, with a course of guaiacum internally, will prove of good service."

19. Prof. Garrod in a recent lecture laid great stress on the functions of the uvula, an organ present only in man and the anthropoid apes, and expressed his opinion that the uvula serves the purpose of preventing the food from entering the back part of the nose, if it should so happen that during the act of swallowing the individual should make a sudden effort at expiratory breathing. The uvula, being pressed back by the moving food against the posterior wall of the pharynx, would retain a free communication between the mouth and the pharynx, at the same time that the nares are close by the soft palate.

20. Dr. Ricardo Guigo reports a case where a fistulous track extended from the front of the neck at the level of the thyroid cartilage, backward and to the right, until it opened, not into the larynx, but into the pharynx, as was proved by injecting water into the cutaneous orifice. After trying unsuccessfully tincture of iodine, and solutions of nitrate of silver as local injections, he passed a probe along the crooked path, and upon this a canula; afterward he pushed through this a red-hot copper wire, fitting the canula, and thus cauterized the parts without danger of forcing the red-hot wire into other tissue. The pharyngeal opening soon closed, but a second cauterization was required to complete a cicatrization along the whole track of the fistula. The cure was permanent.

21. The extirpation of a small polypus, with a broad base located on the left vocal cord just below its free edge and directly in the anterior commissure, appears to have given Hack the greatest difficulty. Aside

from the hinderance afforded by the size and seat of the neoplasm and the extraordinary irritableness of the parts, a peculiar deformity of the epiglottis (a projecting cushion) hid the growth entirely. After a series of experiments and attempts at instrumental interference extending over some six weeks, Hack found that if he caused his patient to take a deep and forced inspiration, and at its height, before expiration commenced, to hold his breath, at this moment the cushion of the epiglottis flattened itself and remained so, and a remarkable anæsthesia of the larynx supervened. In this "breath-pause" before expiration, he could not only see the whole glottis, but for a few seconds introduce instruments into the larynx with precision and safety. The growth was finally nearly cut away from its base by a series of incisions made with the concealed laryngeal-knife; and finally, when it hung but by a shred, an attempt to seize it with forceps provoked cough, which expelled it.

24. The writer has discovered lymph follicles, which up to the present time have only been observed in the human larynx and in those of animals, likewise in the epiglottis, upon its laryngeal face.

29. A tubercular patient with lung cavities suffered from an uncontrollable cough, notwithstanding the larynx presented no evidence of disease. On the autopsy an ulcer of the posterior tracheal wall was discovered immediately below the cricoid cartilage. The cause of the cough evidently lay either in the involvement of sensitive terminal nerve-filaments in the ulcer or in the irritation caused by the slight purulent discharge flowing down to the bifurcation of the trachea. The author of the article raises the question as to whether ulcers of the posterior tracheal wall always cause obstinate cough, and if the converse is not likewise true, when other causes fail.

30, 31. The appearance of the new editions of Dr. Prosser James's well-known manuals is hailed with satisfaction by every laryngoscopist who is familiar with the older ones. The best evidence of their popularity is, however, afforded by the fact that their author has been so soon called upon to revise and republish them, the earlier editions having long since been exhausted. The "Lessons on Laryngoscopy" has already been reviewed in this and other journals; and, as the work on "Sore Throat," the last and best of the author's writings, will be fully criticised elsewhere, further mention of it at this time and place is unnecessary.

32. Dr. James believes in the value and efficacy of iodoform when used internally. As an application to the fauces and nasal passages, he prefers the remedy in fine powder to the ethereal solution, and, when using it in this manner, does not consider it necessary to give it in form of pill, since some of the powder is very likely to reach the stomach and produce constitutional effects. He finds iodoform of equal value in strumous as in syphilitic ulcerations.

38. A little girl, while knitting, fell down in the street, and was found to have received a slight contused wound in the thyroid region, which was accompanied by much pain and a little swelling. A half of one of the needles which she was using had also disappeared. As examination did not reveal the presence of a foreign body, no attempt at its extraction was made. A month later the child was brought to Dr. Mordillon, who found a depression in the thyroid cartilage, running from its superior angle downward, and from left to right toward the junction with the cricoid. This depression seemed to result from the imbrication of two lateral plates of the cartilage, and gave the same sensation as when the bones of the fœtal cranium are riding over each other during delivery; crepitation was also felt, and pressure caused pain and suffocation. The presence of no foreign body could be detected. Respiration was normal, but there was a slight alteration in the voice. The lateral movements of the neck were natural

and without pain, and there was no dysphagia. The diagnosis was oblique fracture of the thyroid, with, perhaps, the retention of the needle in the neck. At another visit, in about three weeks' time, it was found that an abscess was formed, and, on this being opened, a knitting-needle nine centimetres long was discharged, and all signs of fracture disappeared. All the signs of this accident were closely simulated; and it is remarkable that so long a foreign body could have remained for such a time without exciting any functional disturbance of the numerous vessels and nerves of the neck.

40. In a case of mucous polypus of the nose, which had existed for thirty years, filling out completely both nares in all directions, and altering very markedly the contour of the organ, Notta deemed resection of the nose necessary as a preliminary step to the extirpation of the polypus. After the nose had been turned upward upon the forehead, its bridge being preserved intact, the removal of the growth was easily accomplished; the turbinated bones had nearly disappeared under the pressure of the polypus.

42. The actual vibrations of the vocal cords during the production of sounds have hitherto eluded direct observation. According, however, to the publication of Dr. Oertel, their observation is a matter of little difficulty, and is likely to afford instructive information regarding the physiology of the voice. It is only necessary, he asserts, to employ a light sufficiently strong, and to provide an arrangement by which it shall be rapidly interrupted, to render the vibrations visible. The effect of the interruption of the light is to retard the perception of the individual vibration, or, rather, to prevent its impression on the retina from being modified before it can be perceived. Thus, it is possible not merely to observe accurately the vibrations of one of the vibrating cords, but also to compare the vibrations of one with those of the other. The light which is employed must be of the most powerful character, by preference direct sunlight or the electric or oxyhydrogen light. The interruption may conveniently be produced by a perforated diaphragm revolving rapidly, and at a rate proportioned to the rapidity of the vibrations of the sounding cord, or it may be interrupted by a tuning-fork, and in the latter case a note should be chosen of the same height as that produced by the larynx under observation, or an octave from it. The interrupting apparatus must be placed between the light and the laryngoscopic mirror, or behind this mirror, between it and the observer. The latter is a convenient position for the revolving diaphragm, when a little practice in its use has been obtained, and the diaphragm can be turned by the hand at the needful rate for observing the vibrations at a given note. When a chest-note is uttered, the laryngoscope shows the vocal cords vibrating in their entire extent, and the sharp edge cannot be seen. By the interrupted light these vibrations may be separated into the movements of which they are made up, but are seen to be still vibrations of the vocal cords as a whole. When, however, a falsetto note is uttered, the vocal cords are seen to be apparently scarcely moved, and with the interrupted light this is seen to be due to the circumstance that the cords are vibrating in sections two or three, according to the height of the note, the sections being divided by one or two nodal points. (*See* also abstract No. 43.)

43. Oertel, of Munich, has succeeded, by the intermittent illumination of the larynx, by means of a revolving mirror, in observing the isolated vibrations of the vocal cords, and in distinguishing small differences in their tension, and in the peculiarities attending paralysis and other alterations of their functions. The apparatus used seems to be similar in its principle to Foucault's mirror for determining the velocity of light. The brief announcement of his discovery, contained in the *Centralblatt für*

med. Wissensch., No. 5, 1878 (abstract No. 42), has been followed by a second in the same journal, No. 6, in which he describes the different appearance of the cords in the production of chest and falsetto tones. In the former, he finds that the ordinary view is correct—namely, that the vocal cords vibrate, as a whole, in their whole length and breadth. On the other hand, in singing falsetto, the vocal cords are divided by longitudinal nodes running parallel to their edge into two or more vibrating segments, the number of these segments, and of the nodal lines, increasing with the pitch of the note.

46. The following treatment of Pippingsköld for chronic pharyngitis will at least commend itself for its simplicity. In case of pharyngeal catarrh, with extension to the mucous membrane of the general air-passage, he recommends methodical and thorough gargling, morning and evening, with water at a temperature of 15 to 20° C. This to be continued for months, or, under certain circumstances, for a whole year; at least to be recommenced as soon as the symptoms of the catarrh shall begin again to annoy the patient. Two glasses full of water at the above temperature—used at each gargling—relieve hyperæmia, and restore tone to the relaxed vessels of the soft palate. Ice-cold water, in less quantity, will reduce the temperature of the parts more quickly, but causes a powerful reaction, with increased hyperæmia, and can easily therefore do more harm than good. The writer recommends this remedy likewise in granular pharyngitis.

47. Dr. Petersson details in full the history of a case of angina phlegmonosa, which ran a rapid course, and terminated in the death of the patient. He states that the phlegmonous process, causing the death of a strong and healthy patient from blood-poisoning within eight days, developed from a simple angina; that tumefactions—ulcers or other injuries of the hands, which might have given rise to a lymphangitis, which could have involved the throat—were not discoverable. Moreover, the course of the disease was from above downward. Hospitalism could not be regarded as the cause of the unfavorable development of the disease, because it had made its appearance before the patient entered the institution where he died. Diphtheritis and scarlatina were out of the question; at least there was no membranous exudation. The only cause for the rapid change of a simple angina into the phlegmonous form, that could be found, was exposure to cold, the patient sleeping by an open window and awakening with a chill. The much-dreaded œdema of the glottis, not unusual with severe angina, was not present, the patient dying solely from blood-poisoning (septicæmia).

49. Dr. Rouge read to the Congrès International des Sciences Médicales, held at Geneva, a paper on ozæna, in which he stated that, as a rule, the disease originates in suppuration of the nasal fossæ, or the sinuses connected with them, as the frontal, ethmoidal, sphenoidal, and the antrum. The suppuration appears to be always due to some alteration of the bones. The larger the extent of bone affected, the greater the degree of ozæna, the fetidity of the breath being increased by the putrefaction of the gums. The treatment should consist in frequent washing out, with injections of the nasal fossæ, insufflation of astringent, caustic, and disinfectant powders, cauterization with solid chemical caustics, the employment of the galvano-cautery, extraction of sequestra, drainage of the sinuses. To effect these proceedings the nose should be detached by the sublabial operation, which permits all the parts to be examined, and also allows the extirpation of the necrosed parts. No cicatrix is perceptible after the operation. In addition, general treatment should be attended to.

51. In a paper in the *Berliner klinische Wochenschrift* for April 1st, Dr. Sommerbrodt, of Breslau, strongly opposes the statements of Kaposi

regarding the extreme painfulness of syphilitic ulceration of the larynx. He rather regards the almost entire absence of pain in laryngeal ulcers as diagnostic of syphilis, seeing that cases have often occurred where the entire epiglottis was destroyed by ulceration, while the patients complained of little more than discomfort in the throat; or that, in cases of cough and supposed lung-disease, the only discoverable disease consisted of a deep ulcer and defect of the epiglottis; or lastly, that, with extensive ulcerations of the vocal cords, the only symptom was a certain rough hoarseness of the voice. On the other hand, he regards exquisitely painful ulceration of the larynx and epiglottis as pointing rather to phthisical affections. The absence of pain in syphilitic ulcerations of the larynx may indeed lead to the danger of their being overlooked or neglected, though this risk is somewhat compensated by the tendency of these ulcers to heal spontaneously, without any permanent bad results, excepting a certain functional derangement of the voice. The number of cases is, nevertheless, considerable, in which serious injury to the larynx remained even after a radical cure of the original disease. Of these, the most interesting and important are those instances of membranous cicatrices stretched across the laryngeal tube; since, on the one hand, they involve the gravest disturbance of the laryngeal function, and also, on the other hand, admit of operative interference. The entire number of cases of this kind on record amounts to twenty-two—of these, six are described by Elsberg, of New York, while eleven are reported from the southeast of Europe, and the remainder by various writers. It is somewhat remarkable that three-fourths of the European cases occurred in the extreme east, showing the natural indolence and apathy of the inhabitants of those regions, who only seek aid when affected with grave disorder, especially if the attendant pain be inconsiderable.

In narrowing of the larynx by membranous cicatrices, the voice is always impaired, and there also always exists dyspnœa; but the latter is not always in direct proportion to the extent of the membrane and the consequent contraction: for we have in some cases excessive occlusion (stenosis), with but slight dyspnœa, owing to the influence of habit and the slowness of the process; while, in others, dyspnœa may be intense, with only slight narrowing, but supervening rapidly. In the case which he details, the considerable concentric swelling of the laryngeal mucous membrane was a fertile source of dyspnœa, which diminished as the swelling subsided. The true cords are, in most cases, the seat of these membranous cicatrices, by which they are either partially approximated or wholly united, so that they become nearly obliterated. The opening left by the membrane is mostly situated in the posterior portion of the glottis, and is rounded or semilunar. In one case (Navratil) the opening was situated in the middle of the membrane. As to the origin of the membrane, it is always the result of the healing of ulcerated and opposed surfaces coming into more or less continuous contact, be the healing spontaneous, or the result of appropriate treatment. The actual process of the formation and the time occupied thereby have only been observed once before and in the present case (see original article). In the former case, described by Rossbach (Langenbeck's "Archiv," vol. ix.), there was syphilitic ulceration of the cords near the commissure, and about the right arytenoid cartilage. Under treatment, the ulcers healed; but within eight days the cords became united by a membrane in their anterior two-thirds. In Sommerbrodt's case, the anterior third of the cords was united after fourteen days of treatment, and the union became complete after five or six weeks. It will, therefore, always be a matter of practical importance in the treatment of syphilitic cases to institute an energetic and rapid antisyphilitic treatment on the first appearance of redness and swelling about the anterior commissure of the vocal cords; for, if ulceration have once commenced, more or less extensive union is almost necessarily a consequence of cure. If cicatrization and union have actually taken place, the only alternative of operative treatment remains. The division of the membrane may be effected by means of a fine probe-pointed bistoury. But a simple incision is followed in many cases by only temporary results. The galvanic cautery, or caustic potash, will probably be found more effectual in procuring a permanent destruction of the membrane, but even the most favorable result will scarcely obtain a restoration of the voice; dyspnœa will, on the other hand, always be removed.

52. In the *Berliner klinische Wochenschrift* for April 1st, Dr. Sommerbrodt remarks that hæmorrhage in cases of acute laryngitis is not rare, such cases being described by Dr. Fränkel as laryngitis hæmorrhagica. But the following case is unique: A girl, twenty years of age, presented herself in January last, with the statement that, about two hours before, she had, while eating, swallowed something which, she said, had stuck in her throat, causing a pricking pain about the larynx and much discomfort, and that all efforts to remove it, by swallowing bread, etc., had been futile. On examination, there was found projecting into the pharynx, from the posterior laryngeal wall, a dark, rounded body, of the size of a cherry-stone, while all surrounding parts were perfectly normal. It was soft, and firmly adherent to the inter-arytenoid space, and it smanipulation under examination caused no pain. On opening it with a bistoury, a quantity of dark blood flowed out, and the swelling disappeared. It was, therefore, a submucous blood-tumor of the posterior laryngeal wall, simulating a foreign body. Its origin was due, probably, to bruising of the mucous membrane through swallowing a hard morsel. Similar cases sometimes occur of blood-tumors of the buccal mucous membrane through bruising by the teeth.

53. The presentation by Dr. Sémon, at the Clinical Society of London, of a case of "Bilateral Paralysis of the Posterior Crico-arytenoid Muscles" has called forth a most interesting and suggestive discussion on the causation or true pathology of the affection in question, not only in the given instance, but in general. This class of cases being rare, and, as a rule, obscure in their nature, the articles will be read by laryngoscopists with pleasure and profit. A fair abstract alone would occupy more space than we can give it; and, rather than present so interesting a matter incompletely, we prefer to refer our readers to the original reports, as follows: The London *Lancet*, April 20, 1878, pp. 568 and 584; reply of Dr. Sémon to the criticisms made upon his case and views regarding its causation, *The Lancet*, April 27, 1878, p. 630.

56. The histories of two cases will be found in Dr. Smith's very interesting paper on reflex cough, which will be of direct value to specialists, and which will serve as additional illustrations to a very interesting question, on which one or two papers have recently appeared—viz., "Pharyngeal and Laryngeal Neuroses dependent upon a Displaced Uterus." In the writer's own case, a persistent "nervous cough" was entirely relieved by the introduction of a suitable pessary for retroversion. In a case which he quotes from the *Lyon Médicale*, November, 1876, a similar cough was successfully treated by relieving a condition of anteversion of the uterus. In both cases, were the pessary removed, the cough returned at once. For the details of the cases, which will, as we have said, be found of interest, the reader is referred to the original article, and on the general subject may consult the very excellent paper of Dr. Holden (report on Laryngology, No. X.), in which latter a bibliography will be likewise found.

57. Schmithuisen reports from the clinic of Prof. Stoerk the full histories of two new cases of this questionable affection, of which Stoerk

himself has given us a full account. Both cases came from near Vienna, whereas the majority of those reported by Stoerk were from Poland, Galitzia, and Bessarabia. In both the cases here reported the chronic blennorrhagic process began in the nose and naso-pharyngeal space, whence it extended into the larynx and trachea, the lesions in the latter localities being deep and extensive. The slight muco-purulent discharge from the nose yielded readily to ordinary astringent and disinfectant remedies; the etiology of the disease, syphilis being excluded, remains involved in obscurity. The prognosis is, according to Stoerk's experience, unfavorable; degeneration and hypertrophy of the mucous membrane reach a high grade, so that the patients die either of stenosis of the air-passage or consecutive lung-lesions.

Besides Stoerk, Fränkel (Ziemssen, Bd. iv.), and Baginski (*Deut. med. Wochenschr.*, 1876, No. 25) have observed cases; the latter gave the name ozæna laryngo-trachealis to the disease.

59. The following case was reported by Dr. Tauber, of Cincinnati, O., before the Academy of Medicine. "A man, aged twenty-eight, single, consulted him, stating that for two or three years he had suffered a great deal from dyspnœa, hoarseness when he spoke above a whisper, and painful deglutition. His family history was good, the glands in the neck normal, no syphilis nor phthisis. The laryngoscopic examination showed a singular and rare picture. Telling the patient to phonate, he found a normal epiglottis, but no glottis, and instead a pinkish-looking, smooth and flat band, measuring eight lines long, six lines wide, and three-fourths of a line thick, extending from the left to the right sinus pyriformis; thus the glottis was shut up by this band, which covered the arytenoid cartilage, the cartilages of Santorini and Wrisbergiani, false and true vocal cords of the other side. The attachment of this band on the right side was not so broad as on the left side, and ended in the shape of a funnel. On phonation he also observed a vibration of this band coming from the right side, where it was open to the extent of three or four lines; through this opening respiration went on. With the laryngeal knife this band was detached on both sides, and the residue removed with evulsion forceps. Arg. nitr. in substance was then applied. The hæmorrhage was slight. This procedure revealed a normal glottis. His voice after seven days was normal and distinct. Microscopic examination found it to be a fibroma."

60. The following history speaks for itself. The patient was a young lad, about eleven years old. "Previous to little over a year he had been strong and healthy. But at that date he had contracted a severe cold, which was attended with laryngeal pain, loss of voice, and considerable fever. From this attack he slowly recovered, but *never regained his voice.* Latterly he has been rapidly losing flesh, and seemed to suffer considerably from dyspnœa; his appetite was very bad, and he took no interest in any amusement." When seen by the doctor, he was in a very emaciated condition; his face was pale and haggard, the shoulders stooped, breathing quick and short, pulse feeble, constant tickling cough with loud gurgling in trachea, but no expectoration. His sleep was restless and disturbed. There was complete loss of voice, every attempt at articulation ending in a sound as if he were attempting to speak with his mouth under water. There was slight tenderness on pressure along the larynx, and considerable difficulty in swallowing even fluids. At first the doctor was inclined to regard the case as one of phthisis, with ulceration of the epiglottis and larynx; a careful stethoscopic examination, however, revealed no trace of any pulmonary affection. On opening the mouth and depressing the tongue, the tonsils were seen greatly enlarged and perforated in every direction by numerous small ulcers. An examination with the laryngoscope, which was made with much difficulty, plainly showed considerable

swelling and consequent narrowing of the glottis. The enlarged tonsils seemed to rest on the aryteno-epiglottidean folds, where they had formed regular little cups to receive their pendulous points.

After some persuasion he was allowed to excise both tonsils. The child, before leaving the office, spoke quite distinctly, in the course of a week had completely gained his voice, and was, as the writer states, "able to enjoy his existence, which for fifteen months had been a burden to him."

61. A short paper on the general subject of thyrotomy for the removal of laryngeal growths, called forth evidently by the interest excited in Dr. Yeo's case, elsewhere reported (abstract No. 73), and consisting mainly of criticisms on some steps in the operation itself in that case, and the views expressed by those who discussed it. There is nothing new in the article.

62. Tobold has modified Rudolf König's apparatus and employs it as a diagnostic aid in unilateral paralysis of the vocal cords. A drawing of the apparatus in question is given in the article, and reference to it will probably render it more satisfactorily understood than any attempted description.

63. Under the title of "A Curiosity in Practical Medicine," the following case is contributed by Urbanek. A soldier came under treatment with marked swelling, inflammation, and occlusion of the nasal passages. From both nares round white worms, 3 cm. long and 0.5 broad, were removed, and upon a later inspection of the parts quantities of smaller worms were discovered, which had bored into the walls of the septum and mucous membrane of the turbinated bones, at points through and through. On the soft palate was a whitish slough which separated in a day or two, leaving a perforation with resulting disturbance of speech. Injections of carbolic acid quickly killed such of the worms as were not removed by the forceps. The patient, a few days earlier, while suffering from an acute rhinitis, had slept on a hot summer's day in a tent, and the writer believes that at that time some insect had deposited its eggs within the nasal cavities.

64. Unna's new laryngoscope consists of a specially-constructed prism. With it he claims to obtain an exceptionably good view of the posterior wall of the larynx.

68. Dr. Vierling has collected from various sources the records of 46 cases of syphilis of the trachea and bronchia (including one of his own, the details of which he gives in full, with the autopsy), and arranged them in tabular form. The paper will therefore be found a very convenient one for reference by those who may be interested in the subject. From an analysis of the cases we learn that the earlier and milder lesions of syphilis, condylomata, etc., hardly ever affect the trachea, and that ulcerative processes and their sequelæ, cicatrices, are alone commonly found, though a simple catarrh may have existed for a long time previously, without recognition. In the majority of cases contraction of these cicatrices leads to narrowing of the lumen of the trachea, but extension of the ulceration to the deeper tissues may perforate the tracheal wall and give rise to an external abscess (Wallmann). Perforation into a neighboring blood-vessel has twice occurred when the ulcer was situated in the left bronchus (Gerhardt, Kelly). In both instances the left pulmonary artery was opened. The table further demonstrates that the syphilitic affection extends either throughout larynx, trachea, and bronchia, or limits itself to the trachea and bronchia, leaving the larynx uninvolved, the first form being the one most frequently met with. Thirty out of the 46 cases collected, more than one-half, had laryngeal syphilis. If the latter is present, the tracheal mucous membrane will probably be involved throughout, certainly in its upper parts. It may, however, but very rarely, be unaffected at this point.

In syphilis of the tracheal mucous membrane alone, the chief locality will be found just above the bifurcation. At this point, likewise, will stenosis usually occur.

Reference to the table gives us, regarding the seat of the syphilitic disease, the following facts: In 30 cases out of 46 the larynx was diseased; in 36, the tracheal mucous membrane, with or without implication of that of the bronchia, showed evidences of syphilis; and, finally, in 5 was the bronchial mucous membrane alone affected.

If the disease appear in the bronchia, its seat will probably be in those of the largest size, either right or left; more rarely will it be found lower in the tubes, and never in those beyond the third and fourth order.

The sex of 39 cases was as follows: 23 males and 16 females. The ages, in the first *decennium*, two; in the second, two; in the third, eleven; in the fourth, twelve; in the fifth, eight; and in the sixth, four cases; those of the ages of from one to twelve years being attributable to congenital syphilis.

The duration of tracheal and bronchial syphilis is difficult to determine, because patients cannot give a clear history as regards the commencement of their symptoms. Cough, purulent expectoration, slight dyspnœa, often intermittent, and, if the larynx be involved, hoarseness or aphonia. (The majority of the cases were seen and treated in hospital.)

The prognosis is in the majority of instances unfavorable, and the writer recommends that all cases of persistent tracheal and bronchial catarrh in syphilitic subjects should be carefully watched, and that it is often better to try an anti-syphilitic course of treatment at once rather than wait until the severe symptoms of the disease appear. In the latter case no one will deny the necessity of active therapeusis.

If stenosis have occurred, it is all-important for the prognosis whether the constricted point be located in the upper or lower parts of the trachea. If above, tracheotomy will be successful, and the stricture may be included in the necessary incision and dilated at once (Semeleder's successful case). Trendelenburg completes the work of dilating the divided stricture, by first passing bougies through it from the tracheal wound, then from the mouth, and later substituting zinc plugs, which dilate by their weight (?).

Schrötter has further developed Trendelenburg's method, and, as is well known, has successfully employed it in several instances. (*Laryngologische Mittheilungen*, Wien, 1875.)

Schnitzler's method (*Wiener Klinik*, 1877) of cutting through the stricture by means of a specially-constructed knife, used through the mouth, and then keeping it dilated by means of hollow bougies, can only be employed in those cases where the constriction is high up in the trachea, and cannot be used when dyspnœa is excessive, unless a tracheotomy has been performed.

In cases where the stricture is low down, tracheotomy is of course useless, and herein lies the reason, probably, why so many cases have died shortly after its performance. In the table of cases referred to, we find fourteen tracheotomies: in two cases with permanent relief, or cure; in two with an improvement lasting for several months; in the remainder death followed in either a few hours or days.

69. Völker refers to the papers of Koch and Pauli on the "granulation tumors" and "granulation stenosis" of the trachea, which may follow the long-continued use of a tracheotomy tube (see Reports on Laryngology, No. 5), and concludes that the form of the canula of Trousseau is the sole cause of the occurrence of these granulation tumors at the upper and inner boundaries of the tracheal wound. This proposition he illustrates by a drawing, showing that the upper and posterior (inner) and the lower and anterior (outer) curves of the canal are entirely untouched by the canula,

in other words, are free from all pressure. The above accident he proposes to remedy by never leaving the canula in position a moment longer than the indications demand, and by giving to the tracheal tube such a form as shall leave no point free from pressure on the inner periphery of the tracheal fistula.

70. Dr. Woakes says that "in rhinitis, ozæna, post-nasal catarrh, and hyperplastic deposits, whether simple or syphilitic, iodoform exercises quite a specific influence." He finds the painfulness of the ethereal solution its chief objection when applied to the nasal cavity (although allowing the ether to evaporate somewhat from the sponge will lessen the irritant effect), and has been in the habit of using an "iodoformed wool," made by Messrs. Bullock & Co., and containing a drachm of iodoform in a corresponding weight of wool. In using the latter, a small pledget may be passed into the nasal cavity, where it may be allowed to remain from one hour to twenty-four hours.

71. In a very readable lecture by Dr. Whipham, we find the following plan of treatment recommended for acute laryngitis. In the early stages, the use of vin. antimon., ʒss, vin. ipecac., ♏x, potass. acetat., ℈j, spt. ætheris nitros., ʒj, potass. nitrat., ℈ss, to be given every four hours until the physiological action of one or more of the drugs is obtained; in addition, free purgation and the application of leeches, either to the throat or upper part of the sternum. Locally, chloride of zinc, with the laryngeal brush. Steam inhalations of benzoin and acetic acid most frequently; sometimes, atomized inhalations, and, finally, medicated lozenges. In more severe cases, scarification of the tumefied and infiltrated mucous membrane, inhalation of steam, and large poultices to the neck. Finally, in those cases in which such methods of treatment are powerless for good, so rapid is the progress of the disease, and in spite of external and topical applications, inhalations, or scarifications, urgent dyspnœa quickly supervenes, laryngo-tracheotomy is the only remaining resource.

72. All who are interested in the vexed question as to the possible or actual pernicious effects of the nasal douche, and they must of necessity be many, as well as those who have followed the progress of the discussion in recent medical writings on the same subject, will find much that is of value in the interesting paper of Weber-Liel, read before the Hufeland Medico-Chirurgical Society, and translated into the *London Medical Record.* The writer truly states that all remarks, that have as yet been made upon the subject by American, English, and German practitioners, have turned solely on the theme of the penetration of the fluid into the middle ear, and whether this is to be obviated or not. This, however, is not the sole and cardinal point of the subject which is being considered. On closer examination it appears that there are two chief points, which must be kept separate one from the other:

1. The possibility of the passage of fluid from the naso-pharyngeal space into the middle ear:

2. The conditions under which the fluid that has passed into the middle ear gives rise to inflammation, and he proceeds in his paper to show that this takes place only in certain conditions.

The passage of fluid into the middle ear depends: (*a*) not on the nasal douche itself and the manner in which it is applied, but (*b*) on the condition of the lumen of the Eustachian tube, which canal varies greatly in different patients in resisting the penetration of fluid injected into the naso-pharyngeal space.

The conditions under which inflammation occurs after the penetration of fluid into the middle ear do not lie in this alone, but depend also, as he shows, on (*a*) the quality of the fluid used for injection; (*b*) the condition of the tympanic cavity, and the state of the naso-pharyngeal space and the Eustachian tube at the time when the injection is made, and finally (*c*) the condition of the patient, not only during the nasal douche, but after its completion.

73. The great point of physiological interest in the case reported by Dr. Yeo is the preservation of voice, notwithstanding the removal of both true and false vocal cords—in fact, all inter-laryngeal structures—at the time of the operation. The history is as follows: Laryngoscopic examination disclosed the existence in the larynx of a large vascular warty growth, apparently pedunculated, and attached to the anterior commissure above the vocal cords. It almost completely filled the upper part of the laryngeal cavity, concealing the glottis and the vocal cords entirely, except during breathing, when a triangular interval could be seen between the growth and the left vocal cord, through which air passed into the air-passages.

Examination of the chest discovered a distinct pulsation at the sternal end of the second left intercostal space, with a corresponding area of dullness and strongly-accentuated second cardiac sound.

Mr. Lister described the operation which he had performed. Cricotomy having shown that both vocal cords were implicated in the disease, he at once divided the thyroid cartilage, after introducing into the trachea one end of a bent leaden tube, packed with thin sheet India-rubber, so as to plug the canal completely and prevent danger from blood entering the air-passages, chloroform being given at the other end of the tube. Both vocal cords were removed entire, together with neighboring portions of mucous membrane, including the false vocal cords. The sides of the thyroid cartilage were drilled and tied together with silver wire. The great peculiarity of the case consisted in the fact that the patient retained the power not only of coughing, but of speech of considerable power. In order to explain this, Mr. Lister referred to observations upon the movements of the larynx, which he had made in 1861, and published shortly in the article, "Anæsthetics," in "Holmes's Surgery."

He had then ascertained by laryngoscopic examination in his own person, after an experiment upon one of the lower animals, that the pulpy folds of mucous membrane which surmount the summits of the arytenoid cartilages can be carried forward to the base of the epiglottis by an antero-posterior movement of the cartilages not generally known to occur, so as to act as a secure valve to the opening of the respiratory passage. It is the vibrations of these posterior parts of the aryteno-epiglottidean folds which constitute the mechanism of laryngeal stertor, and it is by their means that the exit of air is prevented during the accumulating pressure in an expiratory act which ends in coughing. He believed that it was still not generally known that the strain of the act of coughing is not borne by the delicate apparatus of the rima glottidis, but by these folds of mucous membrane, which cannot suffer from such treatment. Knowing this fact, he had anticipated that the patient would be able to cough like other people, but he had not expected him to retain the power of speaking above a whisper. Yet he might have been prepared for the possibility of such an occurrence, seeing that laryngeal stertor can be produced at will and by a mechanism which is independent of the vocal cords, and was left intact by the operation. Mr. Lister, then, himself uttered a sentence in a voice produced by the vibrations of the aryteno-epiglottidean folds; and he stated that, since his attention had been directed to the subject, he had noticed that this kind of voice is occasionally resorted to in ordinary parlance under the influence of mental emotion.

When the patient was introduced, he showed that he could cough naturally, and also spoke some sentences in a deep, gruff monotone, plainly audible to all present.

Dr. Yeo added, in completion of the history of the case, that inspection with the laryngoscope now showed an entire absence of the normal interlaryngeal structures. In attempts at speech, the aryteno-epiglottic folds were drawn toward the median line and served as vibrating media.

74. Zaverthal describes in his little work several cases that have occurred in his practice as a specialist in throat-diseases. He teaches us nothing new, as a short reference to his cases will prove. In a case of papillomatous growths of the right vocal cord, he employed Voltolini's method, with the small sponge, and, after numerous trials, succeeded in completely "swabbing" away the neoplasm. In the same case he amputated the greatly-hypertrophied tonsils by means of the galvano-cautery loop. He does not, however, recommend this procedure for general use, simple and efficient tonsillitomes being at hand, and the danger from hæmorrhage scarcely ever to be feared. In a second case of aphonia, caused by hypertrophy of the false vocal cords, a cure was effected by means of the galvano-cautery. And, finally, two cases of hypertrophy of the pharyngeal tonsil were treated in the same way.

It will interest the readers of these "Reports" to learn that, in response to an invitation issued on May 10, 1878, from Chicago, a number of laryngologists from various parts of the United States came together at Buffalo, on June 3, 1878, for the purpose of forming a National Association for the advancement of the special department of surgery in which they were chiefly interested. The meeting was called to order by Dr. G. M. Lefferts, of New York, and at once organized by the election of Dr. F. H. Davis, of Chicago, as Chairman, and Dr. Lefferts as Clerk. After the purpose of the meeting had been stated by these gentlemen, a permanent organization was formed, and a constitution and by-laws were framed. A committee was then appointed to nominate officers for the ensuing year, and the meeting adjourned until 3.30 o'clock. In the afternoon, the following officers were elected: President, Dr. Louis Elsberg, New York; Vice-President, Dr. F. H. Davis, Chicago; Secretary and Treasurer, Dr. George M. Lefferts, New York; Council, Drs. Clinton Wagner, New York, William C. Glasgow, St. Louis, E. L. Shurley, Detroit, J. H. Hartmann, Baltimore.

The name adopted was the "National Laryngological Association." The first annual meeting will be held in New York on the second Tuesday in June, 1879.

Miscellany.

The American Medical Association.—The twenty-ninth annual meeting of this Association was held in Buffalo, June 4th, 5th, 6th, and 7th, under the presidency of Dr. T. G. Richardson, of Louisiana. The address of welcome was delivered by Dr. T. F. Rochester, Chairman of the Committee of Arrangements. Dr. Richardson, in his excellent address, devoted some attention to the question of medical reform by means of improved medical education. He believed an important revolution was taking place, and urged greater attention to the various medical organizations. The offer of annual prizes by the American Medical Association for original contributions was strongly urged, as was also the establishment by Congress of a national council of health.

The address on surgery was delivered by Prof. Henry H. Smith, Chairman of the Section of Surgery and Anatomy, his topic being "Certain Points in the Pathology of the Bones." Dr. Frank H. Hamilton presented an abstract of a paper by Dr. E. Seguin on the "Intervention of Physicians in Education." Dr. E. W. Jenks, of Detroit, delivered the address on "Obstetrics;" and Dr. A. L. Loomis the address on "Practical Medicine," recommending, in conclusion, the establishment of sanitaria for consumptives.

The Committee on Nominations made the following report: President, Theophilus Parvin, M. D., of Indiana; Vice-Presidents, A. J. Fuller, M. D., of Maine; W. F. Westmoreland, M. D., of Georgia; John Morris, M. D., of Maryland; John H. Murphy, M. D., of Minnesota; Treasurer, Richard Dunglison, M. D., of Pennsylvania; Librarian, William Lee, M. D., of District of Columbia; Committee on Library, John Eliot, M. D., of District of Columbia.

Committee of Arrangements: Dr. J. P. Logan, Chairman; Drs. H. V. M. Miller, G. G. Crawford, H. L. Wilson, J. F. Alexander, J. M. Johnson, Charles Pinckney, V. H. Talliofero, J. T. Johnson, of Atlanta, Georgia.

Committee on Prize Essays: Dr. Robert Battey, of Rome, Georgia, Chairman; Drs. J. G. Westmoreland, of Atlanta, Georgia; William A. Love, of Atlanta, Georgia; Robert Kidley, of Atlanta, Georgia; Henry F. Campbell, of Augusta, Georgia; J. H. Van Deman, of Chattanooga, Tennessee.

Committee on Publication: Dr. William B. Atkinson, Chairman; Drs. T. M. Drysdale, A. Fricke, S. D. Gross, C. Wister, R. J. Dunglison, of Pennsylvania, and William Lee, of District of Columbia.

The Committee also reported the following nominations for Chairmen and Secretaries of Sections for 1879:

I. Practice of Medicine, Materia Medica, and Physiology: Dr. Thomas F. Rochester, of Buffalo, New York, Chairman; Dr. W. C. Glasgow, of St. Louis, Missouri, Secretary.

II. Obstetrics and Diseases of Women and Children: Dr. E. S. Lewis, of New Orleans, Chairman; Dr. J. R. Chadwick, of Boston, Massachusetts, Secretary.

III. Surgery and Anatomy: Dr. Moses Gunn, of Illinois, Chairman; Dr. J. R. Weist, of Indiana, Secretary.

IV. Medical Jurisprudence, Chemistry, and Psychology: Dr. William M. Compton, of Mississippi, Chairman; Dr. L. M. Eastman, of Maryland, Secretary.

V. State Medicine and Public Hygiene: Dr. John S. Billings, of District of Columbia, Chairman; Dr. J. T. Reeve, of Wisconsin, Secretary.

Atlanta, Georgia, was designated as the place of next meeting, which, it was decided, should be held on the first Tuesday in May, 1879.

The attendance was large, numbering about six hundred delegates and permanent members, and the proceedings were of marked interest. Many excellent papers were read in the various sections, and altogether a large amount of work was accomplished during the brief session of the Association.

Appointments, Honors, etc.—Dr. Harrison Allen has been elected Professor of the Institutes of Medicine in the University of Pennsylvania. Dr. Trenholme has resigned the chair of Midwifery and Diseases of Women and Children in Bishop's College, Montreal. Dr. Edward T. Caswell, of Providence, has been elected President of the Rhode Island Medical Society.

Dr. Brown-Séquard has been elected to the Chair of Physiology in the Faculty of the College of France, made vacant by the death of Claude Bernard. Prof. Volkmann has been appointed rector of the University of Halle for the coming year. Prof. von Bischoff has resigned his chair and has been made a Geheimerath. Bouchardat and Gubler have been very active in organizing an International Hygienic Congress, under the patronage of the French Government, to meet during the Exhibition.

Association of Superintendents of Idiot Asylums.—The third annual session of this Association was held at Syracuse, June 8th. Secretary Kerlin read a paper by Dr. Fetchér Beach, M. B., M. R. P. C., Medical Superintendent of the Clapton Asylum, England, on the "Temporary Loss of Speech after Epileptic Fits." The Secretary read an interesting paper by Dr. C. E. Shuttleworth, B. A., M. D., etc., Medical Superintendent of the Royal Albert Asylum, at Lancaster, England. The subject was "Intemperance as a Cause of Idiocy." Dr. E. Seguin, of New York, read a valuable paper on "Recent Progress in the Training of Idiots." An interesting paper on "The Offspring of First Cousins" was next read by Mrs. Dr. George Brown, of Barre, Mass. Dr. Kerlin read a paper on "The Proportion of Sexes in Idiocy." President-elect for next year, Dr. Doren, of Columbus, Ohio; Vice-President, Dr. Knight, of Lakeville, Connecticut; Perpetual Secretary, Dr. T. Kerlin, of Media, Pennsylvania. Place of meeting in 1869, Lincoln, Illinois.

New Method of compressing the Common Iliac.—In the *British Medical Journal* of May 18th, Mr. Richard Davy, Surgeon to the Westminster Hospital, describes a method he has adopted successfully for the compression of the common iliac artery in amputation of the leg. A straight lever of wood is introduced *per rectum*, and one end applied to the artery between the lumbar bodies and psoas magnus muscle, the other projecting as a handle. By depressing the handle, the perineal tissues serving as a fulcrum, the common and internal iliacs can be effectually controlled. Mr. Davy believes the method more easy and reliable than compression of the aorta, and that the circulatory system is less seriously disturbed by it. No injury need be done to the rectum if proper care is used.

Association of Medical Editors.—The annual meeting was held in Buffalo, June 3d, the evening before the meeting of the American Medical Association, Dr. John P. Gray, President, in the Chair. The following officers were elected for the ensuing year: William Brodie, M. D., President; J. F. Mener, M. D., Vice-President; F. H. Davis, M. D., Secretary.

Association of American Colleges.—At the second meeting of this organization, held in Buffalo, June 3, 1878, twenty-five colleges were represented. Prof. Biddle presided. The following officers were elected for the ensuing year: President, J. B. Biddle, M. D.; Vice-President, N. S. Davis, M. D.; Secretary and Treasurer, Laertes Connor, M. D.

Journalistic Notes.—A new weekly medical journal, entitled the *Wiener medizinische Blätter*, has appeared in Vienna. It is edited by Dr. Wilhelm Schlesinger, and will be devoted chiefly to therapeutics.

Death from Chloroform.—The *Lancet* of May 18th records a case of death from the use of chloroform in a child eight years of age. The anæsthetic was given for the removal of two molar teeth.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from May 14 *to June* 13, 1878.

Head, J. F., Lieutenant-Colonel and Surgeon.—Granted leave of absence for two months. S. O. 47, Division of the Atlantic, June 4, 1878.

Campbell, Jno., Lieutenant-Colonel and Surgeon.—Announced as Medical Director, Department of the South. G. O. 4, Department of the South, May 15, 1878.

Baily, J. C., Major and Surgeon.—To accompany troops ordered on campaign against the Bannock Indians in Southern Idaho, and to report in person to Major Geo. B. Sanford, First Cavalry, at Kelton Station, C. P. R. S. O. 79, Division of the Pacific and Department of California, June 3, 1878.

Storrow, S. A., Major and Surgeon.—Assigned to duty as Chief Medical Officer of the Command of Lieutenant-Colonel L. P. Bradley, Ninth Infantry. S. O. 41, Department of the Platte, May 10, 1878.

Middleton, J. V. D., Major and Surgeon.—Relieved from duty at Fort Schuyler, and assigned to duty at Fort Wadsworth, New York Harbor. S. O. 86, Department of the East, May 17, 1878.

Williams, J. W., Major and Surgeon.—Assigned to duty at Fort Sill, Indian Territory. S. O. 102, Department of the Missouri, June 5, 1878.

Brown, H. E., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at San Antonio, Texas. S. O. 118, Department of Texas, June 7, 1878.

Middleton, P., Captain and Assistant Surgeon.—Granted leave of absence for four months. S. O. 104, A. G. O., May 14, 1878.

Tremaine, W. S., Captain and Assistant Surgeon.—Granted leave of absence for one month, and permission to apply for one month's extension. S. O. 92, Department of the Missouri, May 21, 1878.

Caldwell, D. G., Captain and Assistant Surgeon.—Granted leave of absence for two months. S. O. 108, A. G. O., May 18, 1878.

Cronkhite, H. M., Captain and Assistant Surgeon.—Granted leave of absence for two months. S. O. 112, A. G. O., May 24, 1878.

Koerper, E. A., Captain and Assistant Surgeon.—Assigned to duty with troops ordered from Camp Douglas, Utah Territory, to temporary duty at Fort Hall, Idaho. S. O. 50, Department of the Platte, June 5, 1878.

Vickery, R. S., Captain and Assistant Surgeon.—Leave of absence extended one month. S. O. 125, A. G. O., June 10, 1878.

O'Reilly, R. M., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at Charleston, South Carolina. S. O. 65, Department of the South, June 4, 1878.

Yeomans, A. A., Captain and Assistant Surgeon.—Assigned to duty at Fort Griffin, Texas. S. O. 106, Department of Texas, May 21, 1878.

Patzki, J. H., Captain and Assistant Surgeon.—To report in person to the Army Medical Board, New York City, for examination and promotion, and, on completion of examination, to the Commanding General, Department of the East, for assignment to duty. S. O. 125, C. S., A. G. O.

Winne, C. K., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one year from June 1, 1878, on Surgeon's certificate of disability. S. O. 120, A. G. O., June 4, 1878.

Moseley, E. B., First Lieutenant and Assistant Surgeon.—To report in person to Lieutenant-Colonel L. P. Bradley, Ninth Infantry. S. O. 41, C. S., Department of the Platte.

Kilbourne, H. S., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Riley, Kansas. S. O. 102, C. S., Department of the Missouri.

Newlands, Wm. L., First Lieutenant and Assistant Surgeon.—Granted leave of absence for four months with permission to go beyond sea. S. O. 121, A. G. O., June 5, 1878.

Shufeldt, R. W., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Laramie, Wyoming Territory. S. O. 41, C. S., Department of the Platte.

Wright, J. J. B., Colonel and Surgeon.—(Retired.) Died at Carlisle, Pa., on May 14, 1878.

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Original Communications.

Art. I.—*The Most Effectual Method for controlling the High Temperature occurring after Ovariotomy.* By T. Gaillard Thomas, M. D.

The establishment upon a firm and enduring basis of clinical thermometry, as an adjuvant to the practice of medicine and surgery, constitutes one of the most important advances which has marked the nineteenth century, prolific as it has been in progress. No longer like his forefathers, groping in the dark and dealing with surmises and conjectures, the practitioner of to-day finds the former, both in diagnosis and prognosis, replaced by certainty and the latter by scientific deduction. By the aid of this accurate method he watches his patient's progress from day to day, nay, even from hour to hour, with the calm confidence of one who has a reliable knowledge of the present and a certainty that he will be forewarned as to the future.

But it is not only in reference to diagnosis and prognosis that thermometry aids us at the bedside. It having been observed that prolonged high temperature kills; that, the animal heat being kept for days at 106°, the patient almost invariably succumbs, the knowledge of this fact naturally suggested the adoption of means which, even although they did not cure the existing disorder, lowered the high rate of temperature, and barred at least this avenue to the approach of death.

Although, scattered here and there through ancient medical literature, may be found evidences of desultory efforts at the accomplishment of this result, by the adoption of what I shall to-night maintain as the simplest and most effectual means, refrigeration of the surface by water several degrees colder than the body, it was not until the close of the last century that this method, guided by clinical thermometry, was adopted and fully introduced to the world. In 1787 James Currie, of England, wrote a work urging the adoption of clinical thermometry as the only certain method of ascertaining the degree of animal heat, and the affusion of cold water as the most reliable means of reducing this when much above the normal standard.

I would not be understood as accrediting Currie with the origination of either clinical thermometry or refrigeration of the surface for the depreciation of the temperature. As to the former, as early as the first half of the seventeenth century (1600 to 1636), Sanctorius, of Padua, applied a thermometer of his own invention to this purpose, and in the use of this instrument he was later followed by Boerhaave and Van Swieten. None of these pioneers, however, applied the use of the instrument to the practice of medicine. It appears to have given its rare deductions rather to the advancement of physiology than to that of therapeutics. For De Haen, of Austria, was reserved the glory of the adaptation to practical medicine of one of the greatest contributions which has ever marked a century in the existence of the healing art. After his death his valuable discovery was forgotten, and although something was done in reference to the matter by Martin, Haller, John Hunter, Lavoisier, and Crawford, it was not till the time and labors of James Currie that it was, as has been the case with so many others in medicine, remade and placed upon a scientific basis. Currie's book dealing with these two subjects was entitled, "Medical Reports on the Effect of Water, cold and warm, as a Remedy in Fever and other Diseases." The use of the thermometer dominates the work entirely, and was evidently his chief guide in diagnosis, prognosis, and treatment, the latter consisting chiefly of the affusion of cold water over the patient seated in a tub. The water was poured over the head and chest, from a height of two or three feet, and at a temperature of 40° to 50°, the affusion being ordinarily repeated two or three times a day as the necessity was indicated by the thermometer.

I have said that evidences of desultory efforts at this method of lowering the temperature will be found in the works of old writers. I will quote but one, which appears on the ninetieth page of Collier's translation of Celsus: "But when an ardent fever is consuming the patient, no medicinal potions are to be given, but he is to be cooled in the accessions with oil and water, mingled by the hand until they turn white: he should not be half suffocated with bed-clothes, but covered very lightly. Also vine-leaves steeped in cold water may be applied upon the stomach. He is not to be harassed with excessive thirst."

Currie declares that he got the suggestion of his practice from Dr. Wright, who, in 1786, published reports of cases treated by cold affusion in 1777. He likewise gives, as a reason for his willingness to try the method, the fact that his "respectable colleague, Dr. Brandreth, had employed cold water externally in some recent cases of fever with happy result."

Although it would appear to one reading Currie's simple, unpretending work to-day, with its faithful thermometric record of every case, and its evidently truthful relation of the wonderfully beneficial effects of cold applied to the surface, that it must have carried conviction to all minds, this was not the case. It appears to have produced no profound effect, and the doctrines which it taught were soon forgotten. For the modern revival of cold affusion for the control of hyperpyrexia we are indebted to Brand, Jürgensen, Bartels, Liebermeister, and others, who have especially applied it to the treatment of typhoid fever—while for the popularization of clinical thermometry we have to acknowledge the efforts of Andral, Demarquay, Zimmermann, Bärensprung, Traubé, Wunderlich, Ringer, and others, the enumeration of whose names would make a list too long for introduction here.

Clinical thermometry now stands firmly placed upon an enduring base, which will probably sustain it as long as the existing civilization lasts. But how is it with the other of the two suggestions, the great value of which Currie strove to demonstrate nearly a century ago? It has even now not achieved for itself success. Even in typhoid fever, the affection for which its modern champions especially urge its adoption, it is by no means generally employed, and we find ourselves to-day in the singular attitude of men who carefully note the rise of temperature which they are almost powerless to control after its abnormal elevation has been ascertained. I have quoted the methods adopted for this purpose by Celsus, who lived in the first century. How much are the ordinary ones at our disposal to-day in advance of those which he applied eighteen hundred and seventy-eight years ago? Enthusiastic therapeutists will reply that, in large doses of quinine and salicylic acid and its salts, we have powerful agents which he lacked. My experience with these drugs as to certainty and efficiency is not so gratifying as theirs; not such as to make me feel a great degree of sympathy for old Celsus, who was forced to get on without them.

That in cold affusion we possess a certain, and, when carefully managed, a safe method of lowering abnormally high temperature, no one can doubt who has given the method a fair, impartial, and intelligent trial. Then why is general refrigeration of the trunk so little adopted in diseases marked by great increase of animal heat to-day? The reason is to be found in the difficulties attending the application of the method. To lift a heavy adult out of bed every three or four hours into a bath tub is exhausting and harassing to the patient and fatiguing to the attendants, while in the case of a female the exposure involved renders her averse to it. Sponging the body with cooling liquids is so uncertain and imperfect that it scarcely repays the practice of it. And the "cold pack" of the hydropathist not only tires the patient very much, but soon loses its influence for good by abstracting animal heat from the body and becoming in reality a warm fomentation. Had it been at all times practicable to apply cold water to the entire trunk so as to control elevation of temperature from the inception of diseases marked by it, I have no doubt that long ere this the practice would have become general; and I have as little doubt that many lives which have now been lost would have been saved by it.

Here it may be very appropriately asked: "How does the mere lowering of an elevated temperature save a patient's life, while the disorder which created the pyrexia is not cured, but still advances in its career?" Every fatal disease destroys life through the instrumentality of one or more pathological processes, which it develops during its progress. Let me illustrate this statement by a reference to typhoid fever. This affection may destroy life through the instrumentality of intestinal perforation, of hæmorrhage, of some complication in other organs, the brain or the lungs for example, of exhausting diarrhœa, of syncope, etc., but by far the greatest number of deaths due to this affection are in all probability effected through the agency of prolonged high temperature. Day after day, week after week, month after month even, in rare cases, the exaggerated elevation of the animal heat exerts a depreciating influence upon the blood, impairs nutrition and effects changes in the structure of the heart, the brain, and other organs, which in time result in complete cardiac or cerebral atony, in venous thrombosis, in pulmonary œdema, in acute yellow atrophy of the liver, with cholæmia, or some other secondary affection, to which the patient succumbs. "If we could guard our patients against the deleterious influences of animal heat," says Liebermeister, "typhoid fever would no more belong among the specially dangerous diseases." Extravagant although the statement may appear, I would from my experience fully indorse it.

An excessive degree of hyperpyrexia may destroy life in a very short time. Let me illustrate this statement by a reference to sunstroke. In this curious, and frequently fatal affection, the pathology of which is not yet understood, the temperature rises to 107°, 108°, and 110°. It has been so long accepted that the pathology of this condition is violent cerebral congestion due to the direct influence of the sun's rays, that with most the matter is regarded as settled; but modern pathologists[1] are beginning to take a very different view of the subject, and to regard as the great factor, in the production of the grave symptoms attending the affection, the intensely exalted animal heat which is one of its symptoms. Under the baneful influence of this the blood rapidly becomes acid, rich in urea and white corpuscles, and has little tendency to coagulation. Lactic acid probably develops in it, destroying its alkaline reaction. The heart's power is greatly diminished, and local congestion results; and according to Köster alterations occur in the superior sympathetic ganglia, and in the vagi. Now, it is of course admitted that the high temperature which plays so active a part for evil in this affection is not the essential disease, but its continuance is of primary moment, because it often renders fatal an attack which might not otherwise have proved so. And in support of this view appears the clinical fact that depressing the high temperature by general refrigeration very carefully applied constitutes a most valuable method of treatment.

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[1] Ziemssen's "Cyclopædia," vol. xii., p. 439.

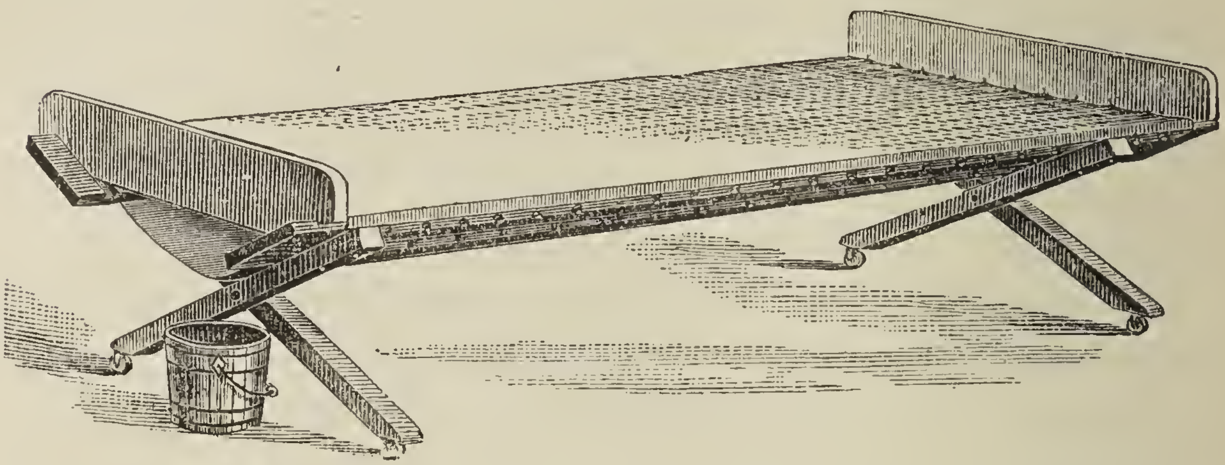
All that has been thus far said of the value of thermometry at the bedside applies with especial force to its use during the two or three weeks following the operation of ovariotomy. To him who relies upon it not unreasonably, but intelligently and cautiously, it is a guide of inestimable importance. It is true that there are accidents which may occur at the moment of operation, such as rupture of the adherent intestine, hæmorrhage, sudden exhaustion of the patient's strength, and others which may bring about an early fatal issue; and after operation, collapse, heart clot, secondary hæmorrhage, tetanus, and others may develop with the same result. But beyond question the two greatest and most frequently destructive of all the sequelæ of this capital operation are peritonitis and septicæmia, both of which announce their existence by rapid rise of temperature. The first of these is exceedingly apt, when it does supervene, to demonstrate its existence before the expiration of the first forty-eight hours, though it may occur at a later period as a disease secondary to decomposition of fluids shut up in the peritoneal cavity, or even to septicæmia itself. The second, consisting in an absorption by the lymphatics of septic fluids which are, through the instrumentality of the thoracic duct, poured into the general circulation, generally develops between the fourth and fourteenth days, though it may occur both earlier and later.

Both these affections produce death in various ways. One of the methods by which a fatal issue is brought about is the production and prolongation of a very high temperature, which soon disorganizes the blood and produces tissue changes in the heart and nerve centres. If from their very inception the temperature could be kept under 100°, and the pulse below 110 to the minute, it is highly probable that many cases would recover which are now lost. That all would do so, no one acquainted with the facts would for a moment hope; for some of the most dangerous cases of both disorders are, as a rare exception to a very general rule, accompanied by a low thermometric range throughout.

As a means of diagnosis, an aid to scientific prognosis, and a reliable guide to treatment in peritonitis and septicæmia following ovariotomy, the thermometer is an invaluable resource; and the object of this paper is to bring before the notice of this society the advisability of controlling the temperature and the pulse at the inception of these affections, while the blood and nerve-centres are still undepreciated in their forces and functions.

The importance of doing this has been recognized by ovariotomists, and partial results have been obtained by the use of quinine in large doses, the administration of salicylic acid, alone or in combination with soda, and the application to the head of the ice-bag of Wells. Struck by the very apparent inefficiency of these means, I have for some time been endeavoring to adopt some plan by which refrigeration of the trunk could be effected without the necessity of exhausting my patient by removal from the bed; and the "cold pack," sponging, and the apposition of wet cloths were, in turn, tried. The use of the cold bath I likewise considered, but it was at once abandoned; for the removal of a patient recently exposed to laparotomy from her bed to the tub was attended by risks which evidently must be much greater than those attending the same process in an ordinary case. The difficulties presenting themselves had well-nigh caused me to forego all hope of employing this means of combating hyperpyrexia, when Dr.

G. W. Kibbee brought to my notice an ingenious device of his for accomplishing the desired result. He places the patient upon what he calls his "fever-cot," which I here exhibit and describe in the words in which he advertises his invention.



"The bed on which the patient lies consists of a strong, elastic, cotton netting, manufactured for the purpose, through which water readily passes to the bottom below, which is of rubber cloth, so adjusted as to convey it to a vessel at the foot. When not in use it can be closely folded so as to occupy but little space.

Upon this cot a folded blanket is laid so as to protect the patient's body from cutting by the cords of the netting, and at one end is placed a pillow covered with India-rubber cloth, and a folded sheet is laid across the middle of the cot about two-thirds of its extent. Upon this the patient is now laid, her clothing is lifted up to the arm-pits and the body enveloped by the folded sheet, which extends from the axillæ to a little below the trochanters. The legs are covered by flannel drawers and the feet by warm woolen stockings, and against the soles of the latter bottles of warm water are placed. Two blankets are then placed over her, and the application of water is made. Turning the blankets down below the pelvis, the physician now takes a large pitcher of water at from 75° to 80° and pours it gently over the sheet. This it saturates, and then, percolating the network, it is caught by the India-rubber apron beneath, and, running down the gutter formed by this, is received in a tub placed at its extremity for that purpose. Water at higher or lower degrees of heat than this may be used. As a rule, it is better to begin with a high temperature, 85° or even 90°, and gradually diminish it.

The patient now lies in a thoroughly soaked sheet with warm bottles to her feet, and is covered up carefully with dry blankets. Neither the portion of the thorax above the shoulders nor the inferior extremities are wet at all. The water is applied only to the trunk. The first effect of the affusion is often to elevate the temperature, a fact noticed by Currie himself; but the next affusion, practised at the end of an hour, pretty surely brings it down. It is better to pour water at a moderate degree of coldness over the surface for ten or fifteen minutes than to pour a colder fluid for a shorter time. The water slowly poured robs the body of heat more surely than when used in the other way. The water collected in the tub at the foot of the bed, having passed over the body, is usually 8° or 10° warmer than it was when poured from the pitcher. On one occasion Dr. Van Vorst, my assistant, tells me that it had gained 12°.

At the end of every hour the result of the affusion is tested by the thermometer; and, if the temperature has not fallen, another affusion is practised, and this is kept up until the temperature comes down to 100° or even less.

It must be appreciated that the patient lies constantly in a cold wet sheet; but this never becomes a fomentation, for the reason that, as soon as it abstracts from the body sufficient heat to do so, it is again wet with cold water and goes on still with its work of heat abstraction. I have kept patients upon this cot enveloped in the wet sheet for two and three weeks without discomfort to them and with the most marked control over the degree of animal heat. Ordinarily, after the temperature has come down to 99° or 100°, four or five hours will pass before affusion again becomes necessary.

This device of Dr. Kibbee is so simple that one wonders that any perplexity attended his accomplishing all that it does before it was shown to him, and at once the thought suggests itself how easily a substitute for it could be improvised. It is the old, old story of the egg of Columbus. The idea, once suggested, by its very simplicity assumes its place in the mind as a familiar one. Simple as it is, it affords the means of using a most important therapeutic resource, and, in my estimation, leaves nothing to be desired in this respect. Recognizing in this a method by which cold could be applied to the surface for any length of time without fatigue or exhaustion to the patient and without the danger of excessive chilling, since any great depression of temperature can be obviated by the affusion of warm water, I determined at once to adopt it after ovariotomy.

In adopting this plan of treatment after ovariotomy, and as I have in several cases done after parturition, I did not propose by it to check peritonitis, or to cut short septicæmia, the great evils to be feared at this time. My hope was to rob these diseases of one of their chief weapons of destruction—hyperpyrexia, and thus to resist the primary assault in the hope of bearing up against a more prolonged though less violent siege.

In all acute and grave diseases, the invasion of the disorder produces great commotion, which rapidly subsides as the system becomes familiarized with the invading ailment. This is most marked in pneumonia—and to a less degree in peritonitis and septicæmia, if the patient does not succumb very early. How often has every ovariotomist been surprised, in making an autopsy of a patient who has apparently died of acute peritonitis, to find only a slight field of pelvic peritonitis, which most unsatisfactorily accounts for the destruction of life!

Robbed of its lengthy and wearing high temperature, which lasts for weeks, depraving the blood, altering the nerve-centres, and degenerating the muscles, typhoid fever runs a much more manageable and less violent course. So septicæmia and peritonitis, kept from the commencement of their courses within normal limits as to temperature, are wonderfully different in their manifestations from the same diseases uninterfered with in this respect. Under these circumstances the system of the patient may be likened to a city exposed to attack from an armed foe. By assault it would stand little chance; but, once having resisted this, its prospects of holding out against a siege would be good, although in the end it might yield even to this. Still the prospects of successful defense would be greatly increased if the primary, most energetic, and most vigorous attack were defeated.

For most of the notes of the cases which I shall now present to illustrate these remarks, I am indebted to Drs. John Van Vorst and James L. Perry, House Surgeons of the Woman's Hospital. I shall be forced to be rather prolix with reference to the daily thermometric record, but I shall endeavor to be as little so as is compatible with a clear demonstration of the influence of cold to the surface upon increased animal heat.

Case I.—Mrs. S., aged twenty-two years, married six months, native of Maryland, was admitted to the Woman's Hospital on account of a very large ovarian tumor which had been discovered nine months before. She was extremely exhausted, and the prognosis which was made as to her recovery from operation was very unfavorable. The removal of the tumor was rendered exceedingly difficult by numerous and firm adhesions, and in twenty-four hours acute peritonitis developed itself unmistakably.

The operation being completed at 3 p. m., the patient did quite well until 8.45 on the next day, when the temperature rose to 102°, the pulse to 120. By 2 p. m. the former had risen to 102$\frac{2}{5}$°, and at 3.30 p. m. it had reached 103°, the pulse 130, and there were intense abdominal pain and frequent vomiting. At 3.50 the patient was arranged upon Kibbee's fever-cot, and half an hour later was showered with water at 50° Fahr. The temperature rapidly fell to 101$\frac{2}{5}$°. Affusion repeated in forty minutes; and in an hour from this time the pulse had fallen to 112 and the temperature to 99$\frac{2}{5}$°. Pain had been quieted by morphia hypodermically administered; and, although exquisite tenderness to touch existed over the abdomen, the patient was very comfortable; this was at 6 p. m. The temperature did not again rise above 100° that day, although the intense pain, which required large amounts of morphia hypodermically, evidenced the fact that acute peritonitis was steadily progressing. The patient was of course kept constantly enveloped by the wet sheet. At 2.15 p. m. the next day, temperature 100$\frac{3}{5}$°; and at 3.45, 101°. Cold affusion again practised, water at 88°. At 4.30, temperature was 100$\frac{4}{5}$°. Cold affusion again practised, and at 6 p. m. pulse had fallen from 120 to 110, and temperature to 99°. Patient nourished by rectum almost entirely, and pain controlled by morphia administered hypodermically. Temperature did not again reach 100° before 4.30 a. m. the next day, when it reached 100⅖°. At 7.30 it had reached 100⅘°, when cold affusion was practised at 63°. At 10. A. M. temperature had fallen to 99⅘°. It did not again reach 100° until 6 A. M. on the next day, when pulse was 120, temperature 101°. Affusion practised at 58°. At 7.30 A. M. pulse had fallen to 116, and temperature to 99°. Temperature did not again reach 100° on that day. On the following day, at 1.30 P. M., it went up to 101⅕, and pulse to 140, when affusion was practised at 84°. At 4. P. M., temperature having fallen only one degree, affusion was repeated, and at 9 P. M. pulse was 135 and temperature 98°. Temperature did not rise above 100° on the next day; and, although the patient was kept constantly enveloped by the wet sheet, affusion was not repeated until 2.30 P. M. on the day following, when temperature was 100⅘°. It immediately fell so that in a half hour it was 99⅕°. Affusion was not repeated till 6.15 P. M. the next day, when, temperature rising to 100⅕°, it was practised at 78°, and at 7.30 P. M. it had fallen to 99⅖°.

In this way the temperature was kept at or below 100° for twelve days, the patient meantime being sustained by rectal alimentation, and pain subdued by morphia, given hypodermically. All through the progress of the case, I and the gentlemen associated with me in its treatment had been convinced that acute peritonitis, which under ordinary management would have destroyed our patient's life within two or three days, was steadily progressing with a temperature nearly normal and comparative freedom from pain. This opinion was corroborated by a discharge of over a pint of pus through the abdominal incision on the fourteenth day. After this the temperature again rose, but was readily controlled by cold affusion. The patient's condition evidencing great prostration, on five occasions intra-venous injection of milk was practised, as has been on a previous occasion related to this society; but, in spite of all our efforts, she died on the twenty-sixth day after operation. Autopsy revealed evidences of an intense peritonitis, with several points of localized gangrene of the intestine, which had produced death.

Case II.—Mrs. B., aged thirty-nine, born in America; married, but never pregnant; was submitted to the operation of ovariotomy, which was postponed on account of bronchitis, accompanied by considerable dyspnœa. Tumor very large, firmly adherent, and removed with difficulty. Operation performed at 3 P. M.; in twelve hours temperature began to rise, and soon reached 104°; patient complaining of a good deal of abdominal pain. Being placed upon the fever-cot, affusion was practised every hour or two hours for from ten to fifteen minutes at a time, with water varying from 68° to 75°. Temperature fell gradually, diminishing about half a degree after each affusion, until five had been practised, when, at 3 P. M. the next day, twenty-four hours after operation, it was 101°; pulse 106. Pulse had been previously 135. On the second, third, fourth, and fifth days, temperature was kept by repeated affusion at about 101°, sometimes being as low as 100°, sometimes as high as 101$\frac{1}{2}$. On the fifth day a severe attack of acute pleuritis developed itself, which soon became complicated by copious effusion. Temperature rose to 102$\frac{3}{5}$° at this time, but the affusions being kept up it was readily controlled and kept at about 100°. On the eighth day after operation the patient seemed to have entirely recovered from the effects of ovariotomy, and she was removed from the pavilion in which it had been practised to the main building of the hospital; but at the end of two weeks great aggravation of the pulmonary symptoms developed itself with symptoms of pneumo-thorax, to which the patient succumbed.

Autopsy revealed evidences of peritonitis, pleurisy with effusion, and pneumo-thorax.

It is an open question whether the application of cold may have created the pulmonary complication which caused the fatal issue in this case. From my experience with the plan, I am impressed with the belief that it did not, but of this I of course am not positive.

I have had two other cases, treated in this way after ovariotomy, terminate fatally, but I shall not weary the society with their relation, as they but repeat the lessons taught by the two just recited—namely, the uniform capacity of this method of refrigeration for maintaining a nearly normal temperature, even while a fatal disorder, one of the most striking characteristics of which is hyperpyrexia, still steadily marches on to a fatal issue.

Case III.—Mrs. K., aged forty-six, a native of France; married ten years, mother of one child; was operated upon by ovariotomy at the Woman's Hospital under Lister's method. Operation was performed at 3 p. m. At 9 a. m. the next day the patient was taken with violent pain in the abdomen, and the temperature began steadily to rise, and at 3 p. m. on the next day it had reached 104°. At this time I saw her, and had no doubt but that acute peritonitis was certainly developing. Patient had been removed from the operating-table directly to the fever-cot, and cold affusion was promptly adopted. Practised with water at from 70° to 75°, and repeated nearly every hour, the first three applications produced but little effect; but at 7 a. m. the next day, ten affusions having been given, the pulse was 98 and the temperature 100°. At 11 a. m. pulse was 102 and temperature 98$\frac{3}{5}$°. After this no difficulty was experienced in keeping the temperature at or a little below 100° by rare affusions, the patient, of course, being constantly enveloped in the wet sheet, until the seventh day, after which she was removed to her bed, and steadily progressed to recovery.

Case IV.—Mrs. S., aged fifty, native of Ireland; married twenty-eight years; mother of four children; was submitted to ovariotomy for the removal of a very large tumor at 9.30 a. m. On the third day the temperature and pulse began to rise, patient to complain of great abdominal pain and tenderness, and to suffer from tympanites. By the latter part of the day pulse ranged at 112, and temperature at 102$\frac{2}{5}$°, when the patient was put upon the fever-cot and affusion practised at 74°. By 8.30 a. m. the next day, only three affusions having been practised, pulse was 96, temperature 100$\frac{2}{5}$°. They remained about this until 6 p. m., when temperature went up to 102$\frac{1}{10}$°, when affusion was practised at 72°. It came down by 10 p. m. to 101°, and after three more affusions to 99° at 2 a. m. the next day. After this temperature remained about 101° until the eleventh day; but, as there seemed to be no tendency to increase, no affusion was practised, patient being merely kept in the wet sheet. Then she was re moved from the pavilion to the hospital, where she steadily convalesced.

CASE V.—Mrs. S., a multipara, was submitted to ovariotomy for the removal of an ovarian cyst which had ruptured and discharged its contents into the peritoneal cavity. For three days convalescence progressed favorably, but at this time alarming symptoms developed themselves. The temperature, which had previously been 101°, rose to 102°, 103°, 104°, and toward mid-day on the third day had reached $105\frac{1}{5}$°. The pulse at the time ranged between 130 and 140. The patient was at this time put upon the fever-cot by Drs. Walker and Jones, who had charge of her during my temporary absence from town, and affusion was practised at 80°. The result was immediate and gratifying. In an hour and a quarter temperature had fallen to $102\frac{1}{2}$° and pulse to 118, and in twelve hours more, four affusions having been practised, temperature was $100\frac{6}{10}$° and pulse 104. The patient was kept constantly enveloped in the wet sheet, and by using the cold affusion at irregular intervals, when temperature would reach 102°, it was maintained nearly at the normal standard for a week, after which time the patient advanced to complete recovery.

CASE VI.—I shall here introduce, by way of increasing the interest in this subject, a case of peritonitis, which arose from other causes than those developing after ovariotomy. Mrs. S., a multipara, who had for a number of years suffered from retroflexion of the uterus, was wearing a pessary, which she had been directed to remove in case of any pain developing in the pelvis which could at all be attributed to its presence. In spite, however, of considerable discomfort, she neglected to do this, and one night near 2 A. M. she was suddenly seized with violent pain in the hypogastrium, for which she sent for a neighboring physician, who administered morphia freely for its relief. On the next day I saw her, and found the pulse beating at 120 to the minute, and the temperature elevated to 102°. She was put at once upon fluid diet, all pain was quieted by opium, a nurse was procured, and the strictest quiet enjoined; but the disease was not controlled, and on the third day of the attack the pain was so violent as to require large doses of morphia for its control; the pulse beat at 140 and the temperature rose to 104½°. Dr. Walker, who saw her at the time, reported to me that a fatal issue was almost certain.

I determined to try the use of affusion by the method of Kibbee, and the result was better than I had anticipated it could be. Affusions at from 60° to 70° were practised for a week, with the almost constant result of lowering the temperature quickly and certainly.

One fact which was very strikingly noticeable in this case was the much more decided and beneficial effect of opium given when the temperature was near the normal standard, than when given, the animal heat being much exalted. That the opium treatment alone would not have effected a cure in this case, and that the recovery of the patient was due to systematic maintenance of the temperature at a point near the normal standard, I feel as sure as I can feel about anything which I cannot demonstrate.

In four cases I have employed this method, not as a curative one for the sequelæ of ovariotomy, but as a preventive measure. The patient has been at once removed from the operating table to Kibbee's fever-cot, and, so soon as the temperature has risen to or above 101°, cold affusions have been practised, not with the view of curing a commencing attack of peritonitis, but of preventing its development. All these cases have recovered. As an example of the action of the plan I shall relate only one, for the others resemble it so closely that a detailed reference to them would be tedious and unnecessary:

Case VII.—I was requested by Dr. W. S. Ayer, of Owego, to go to that place and remove a large abdominal tumor from a patient whose history was the following. Having suffered for between two and three years from great abdominal enlargement, and the existence of a tumor having been recognized, Mrs. B. had, through Dr. Ayer's advice, consulted one of the most eminent ovariotomists of this country. He had pronounced the tumor to be a uterine fibroid, and this had induced the patient to avoid operation. As, however, a fatal termination was now imminent, and as Dr. Ayer felt doubtful as to the correctness of this diagnosis, he requested me to go to Owego prepared to remove the tumor, whatever its nature might be. I went prepared to remove the entire uterus, but upon examination of the case became at once convinced that the tumor was ovarian, with a large proportion of solid material in its structure. The removal of the growth was difficult on account of its great size, but it was successfully accomplished, the patient being at once placed upon a fever-cot and left under the care of Dr. Ayer. I now read his report of the case, which went on steadily to complete recovery.

"Ovariotomy was performed on Mrs. B., May 4th, at 12.30 P. M. Two weeks preceding the operation, she had an attack of subacute peritonitis, resulting in large effusion into the peritoneal cavity and an extremely irritable stomach. At the time of the operation she was very feeble, her pulse being 120 and temperature 99°.

"Immediately after operation pulse 140, temperature 98°.

"At 9 P. M. temperature 99°, pulse 130.

"*May 5th.*—11 A. M., temp. 102°; pulse 130; cold used. 2 P. M., temp. 98°; pulse 100. 10 P. M., temp. 98°; pulse 110.

"*6th.*—5 P. M., temp. 100°; pulse 120.

"*7th.*—9 P. M., temp. 102°; pulse 130; cold used.

"*8th.*—9 A. M., temp. 100°; pulse 120. 9 P. M., temp. 101°; pulse 130; cold used.

"*9th.*—9 A. M., temp. 99½; pulse 112. 9 P. M., temp. 100½°; pulse 112.

"*10th.*—9 A. M., temp. 102°; pulse 120; cold used. 9 P. M., 100¾; pulse 115.

"*11th.*—9 A. M., temp. 100°; pulse 115. 6 P. M., temp. 102½°; pulse 115; cold used. 9 P. M., 101°; pulse 110.

"*12th.*—9 A. M., temp. 99°; pulse 108.

"*14th.*—7 P. M., temp. 104°; pulse 140; water used freely. 9 P. M., temp. 102°; pulse 130; water used freely.

"*15th.*—6 A. M., temp. 101°; pulse 130; cold used. 6 P. M., temp. 100°; pulse 120.

"After the eleventh day the temperature did not go above 100° and convalescence was thoroughly established. The cold affusion was most grateful to her, she often begging to have it used, although she was left in the wet sheets. I am unable to account for the sudden rise of temperature on the eleventh day. It caused me much anxiety, but was readily controlled by the affusion. For four days succeeding the operation the patient was nourished entirely by enemata, with frequent hypodermics of brandy.

"The wound including the fistula was closed by the thirtieth day, and the patient sitting up and dressed. The direction not to allow the temperature to go above 101° without using the affusion was carried out to the letter, and seems to me was the cause of saving the patient's life."

Case VIII.—In only one case have I seen cold affusion depress the patient's system to a degree to cause any anxiety. In this case, a young girl of sixteen years for whom I had removed a tumor of medium size, the heart's action appeared to be unfavorably affected. The pulse under the influence of the affusions would become irregular and intermittent, and the hands very cold and a little blue. As, however, the temperature rose to 103½° on the third day after operation, the plan was cautiously persisted in. The cold affusions controlled the rise of animal heat very perfectly and the patient made a rapid recovery.

In reviewing the notes of this case, I am satisfied that the unfavorable developments were due to one or both these causes: the patient was saturated with malaria, and the early affusions practised were at too low a temperature. In a sensitive patient it is well to begin with water at 98°, and, using it once an hour, to diminish gradually, carrying the temperature of the fluid down to 95°, then to 90°, 85°, 80°, 75°, 70°, and lower when necessary.

In concluding this paper, I must say that no one recognizes its incompleteness more thoroughly than I do. Only one point is fully proved by it—that is, the efficacy of cold affusion in controlling the high temperature developing after ovariotomy. In extenuation of this circumstance, I offer the fact that this is the only position which it assumes, and the only one which it is called upon to sustain. That by it peritonitis or septicæmia is absolutely checked, I do not claim. That their courses are by it robbed of much of their destructive tendency, I trust that I have demonstrated, as far as demonstration is possible from so small an exhibit of cases. A mere personal conviction unsupported by clinical demonstration is, and should ever be, a matter of little moment in a scientific discussion. In the face of this assertion, however, I venture to record mine to the effect that the practice of cold affusion, by Kibbee's method, for the control of high temperature, is sure in the future to earn for itself a position of honor and trust from ovariotomists.

ART. II.—*Cerebral Thermometry.*[1] By LANDON CARTER GRAY, M. D., Brooklyn, N. Y.

IT is well known to all neurologists that M. Paul Broca, whose reputation as an investigator has justly spread over two hemispheres, read a paper on Cerebral Thermometry before the *Association française pour l'avancement des Sciences*, at its meeting on the 30th of August, 1877.[2] Upon perusal of the report of this communication, I was greatly impressed with the possible value of the subject as a diagnostic aid in cerebral affections. I soon afterward determined to repeat the experiments of the illustrious Frenchman upon a more extended scale, and this paper contains the results of such repetition.

I regret that I have been obliged to content myself with a mere abstract of M. Broca's paper, not having been able to obtain a full copy, although I have sent to Paris for the purpose. This fact will excuse any inadvertent injustice that I may happen to do the gentleman in not crediting him with more fullness of detail than has been attributed to him in the report which I possess. I have thus not been exactly positive as to what variety of thermometer M. Broca used, although, from the meagre description of the reporter, I have presumed that he employed one similar to the one which I have adopted, and which is well known as the Seguin surface thermometer (Fig. 3). As all American physicians are aware, this consists of a button-like bulb, about three-eighths of an inch in diameter, from which emerges an upright registering tube about four inches in length. The first set of these, although carefully made for me by Messrs. Tiemann & Co., proved to be eminently unsatisfactory, and for two reasons: they were not self-registering, and moderate pressure upon the bulb was found to elevate the registering column slightly over one degree. The necessary manipulation of the instruments, of which I shall speak presently, rendered these defects fatal to accuracy. This easy response to moderate pressure upon the bulb is, I am led to believe, a very general although unrecognized fault with thermometers of this variety. As a curiosity, I have brought one with me to-day, made by some foreign manufacturer, in which, as you see, pressure upon the bulb alters the scale 15 degrees. I rejected, therefore, the observations already made, and ordered a new set. After repeated and careful experimentation, Mr. A. Bayer, by whom these thermometers are made for Messrs. Tiemann & Co., succeeded in completing a set, in some of which moderate pressure had no appreciable effect, while in others such pressure would cause the scale to rise about one fifth of one degree; and these were made self-registering. Before placing the thermometers in position, I have made a practice of shaking the register down 10 to 12 degrees below the probable temperature of the part to be registered, thereby avoiding all possible error from pressure. I have taken great care that these instruments should be also perfectly accurate as registers of heat. They were compared with a standard thermometer in the possession of Mr. Bayer, which had been seasoned for three years in the rough, then carefully and repeatedly graduated by a standard thermometer of Mr. James Green, the well-known maker of scientific apparatus, which latter is identical with Casella's standard; and from time to time since their manufacture my instruments have been again tested.

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[1] Read before the American Neurological Association, June 20, 1878.

[2] Progrès Médical, 1877.

For holding the thermometer upon the head I employ a ribbon, such as is used for a laryngoscopic mirror, or a morocco band (Fig. 1), either of which is perforated throughout its length by holes of proper size to snugly embrace the tube. This ribbon or band encircling the head, upon a level with the eye-brows and the temporal plane just above the ears, and being buckled across the forehead, I station thermometers in it at the points indicated by M. Broca, as follows: One on each side somewhat back and above the commencement of the external angular process of the frontal bone, one on each side just above the ear, and on each side of the occiput. The two anterior points I have termed the Frontal Stations, the two above the ear the Parietal Stations, and those posteriorly the Occipital Stations. In this manner the frontal, the parietal, and the occipital lobes are fairly approached. But these temperatures indicate only the temperature of the sides of the brain. It has seemed to me important, as well as feasible, that the temperature of the motor region of the vertex should also be ascertained. With this end in view, I have profited by the recent researches in cranial topography of MM. Broca,[1] Heftler,[2] and Féré.[3] According to these writers the fissure of Rolando, which may be regarded as at the centre of the motor region of the vertex, abuts upon the great longitudinal fissure at a distance of 47 to 48 millimetres, or about $1\frac{7}{8}$ inch, to the rear of the coronal suture. As the coronal suture, however, is not easy to distinguish through the scalp in the living person, I have selected the furrow formed by the junction of the nasal bones with the nasal process of the frontal as a more salient point of departure, and have determined its distance from the coronal suture by measurement of 24 skulls. The average was found to be 5 inches, the maximum $5\frac{5}{8}$ inches, the minimum $4\frac{5}{8}$ inches. This average, or a deviation from it of not more than $\frac{3}{8}$ of an inch, was maintained in 95.82 per cent. of the measurements. Adding together the calculations of the French authorities as to the distance of the fissure of Rolando from the coronal suture and my own as to the distance of the coronal suture from the junction of the nasal bones with the frontal, the average distance of the fissure of Rolando from the fronto-nasal junction is ascertained to be about 6⅞ inches, the deviation being so slight as to be practically of little moment. Mapping out the fissure of Rolando in this manner, I have attached by loops two ribbons or bands to the ribbon or band encircling the head, in such a manner that one may be buckled across the vertex anteriorly and the other posteriorly to the fissure (Fig. 1). In each of these bands I station two thermometers, one on each side of the median line of the head, and about an inch apart, so that a square is thus formed, roughly tracing the outline of the motor zone of the vertex, and at whose four corners are situated the Vertical Stations. These bands or ribbons are of the same material as the lateral head-band, and similarly perforated.

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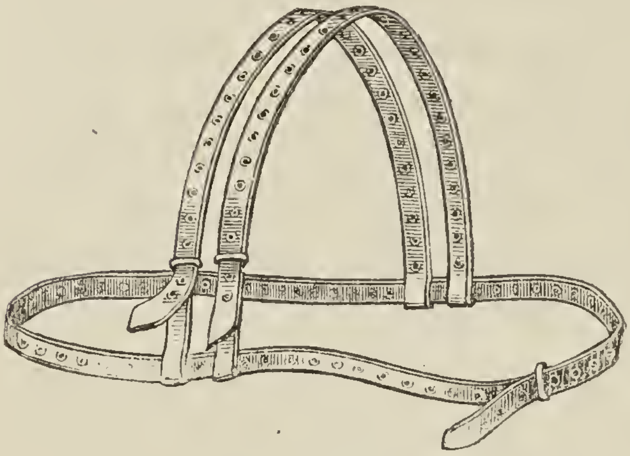
[1] "Sur la topographie crânio-cérébrale," *Rev. d'Anthrop.*, t. v., No. 2, 1876.

[2] "Circonvolutions cérébrales chez l'homme, et leurs rapports avec le crâne," par Ferd. Heftler, Dissert. Inaug. à l'Acad. Med.-Chir. de Saint-Petersbourg, 5 mai, 1873.

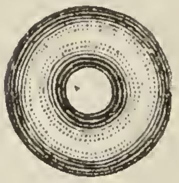
[3] "Note sur quelques points de la topographie cérébrale," par Ch. Féré. *Bull. Soc. Anat.*, 24 déc., 1875.

Fig. 1.



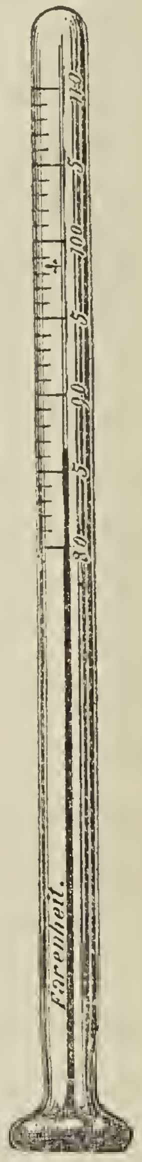
Head-Strap.

Fig. 2.



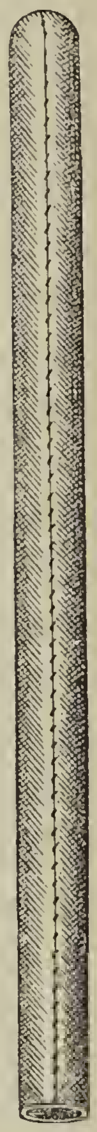
Pad.

Fig. 3.



Thermometer.

Fig. 4.



Finger.

The instruments have been carefully protected against atmospheric variations by a small silk pad lined with wool (Fig.

2), and which has an orifice so as to permit of its being slid over the tube down to the upper surface of the bulb, as well as by a silk finger (Fig. 4), also lined with wool, which is pushed over the tube.

It has been my habit to arrange the head-gear in this manner: I first buckle the band around the head. Sliding a pad over each thermometer, passing the tube through a perforation opposite the proper place, and then covering it with a silk finger, I adjust an instrument at each Frontal, Parietal, and Occipital Station. I now fasten the vertical bands in place, and, observing the same precaution as to pads and fingers, I arrange the four thermometers as I have described. The instruments remain on the head for twenty minutes; and then, gently and carefully removing the silk fingers, without at all moving the bulb from the scalp, I read off the markings.

M. Broca's observations were made on twelve internes and dressers, who were nearly of the same age, the same intellectual development, and placed very nearly in the same circumstances. For purely scientific or physiological purposes, this similarity of age, intellect, and surroundings, was undoubtedly of great advantage. From a utilitarian, diagnostic point of view, however, this feature is of equally great disadvantage, because it would be impracticable to select our patients so nicely and critically. At the outset, therefore, I resolved to take persons as they came, simply being careful to avoid any extremes, as of great emotion, mental excitement, or prolonged slumber, and that there should exist no appreciable ill-health. My observations were made upon 92 of the medical students in attendance at the Long Island College Hospital, as well as upon 10 physicians, numbering in all 102 males. The age has been on the average 28.94, the maximum 50, the minimum 18. Of this number I am unable to make use of 40 for absolutely accurate calculations, because of a defect in my thermometers of somewhat less than one quarter of one degree, which was unnoticed for several days, and which I cannot eliminate in any other way than by this wholesale rejection. For calculations, however, that are merely comparative, and wherein this defect would be harmless, I shall employ these imperfect observations without hesitation. In all of my cases I have also taken the temperature of the mouth with an accurate thermometer. The Fahrenheit scale has been used in preference to the centigrade, as it is more familiar to Americans.

The average of the Left Frontal Station was 94.36°, that of the Right being 93.71°, the difference being .65°. At the Left Parietal the average was 94.44°, while at the Right it was 93.59°, the difference being .95°. The average of the Left Occipital Station was 92.66°, that of the Right 91.94°, showing a difference of .72°.

Thus, it will be perceived, the left lobes possess a higher temperature than do those of the right, the difference amounting on the average to .74°. Moreover, the range from maximum to minimum at the lateral stations on the right is larger than it is on the left, being on the average 6.25 on the left and 7.58° for the right, showing a preponderance in favor of the right of 1.33°. It will also be remarked that the temperature of the brain decreases posteriorly, with the single exception of the Left Parietal Station, of which the average is .04° higher than that of the next highest point, the Left Frontal. In this last particular my observations differ from those of M. Broca. Has the connection between the third left frontal convolution and the memory and faculty of language anything to do with this phenomenon? I am inclined to think that it has. M. Heftler[1] states that the lower portion of the fissure of Rolando is 28 millimetres, or about $1\frac{1}{11}$ inch, to the rear of the fronto-parietal suture. It has been at or rather anteriorly to this point that my Parietal Stations have been situated, so that they have actually been over or in close proximity to the third frontal convolution at its upper and posterior part, where it is bounded by the lower portion of the fissure of Rolando. The memory of words and the faculty of articulate language, to which the structural integrity of the third left frontal convolution is known to be necessary, are so interwoven with all forms of mental activity, as thought and the emotions, that it is by no means a bald hypothesis to suppose that this convolution may have a more incessant and complicated function to perform than any other portion of the brain.

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[1] *Op. cit.*

The maxima and minima of temperature at the lateral stations were as follows:

	Maximum.	Minimum.	Difference.
Left Frontal	97°	91°	6°
Right Frontal	97°	89.75°	7.25°
Left Parietal	96.50°	90°	6.50°
Right Parietal	97.50°	89.50°	8°
Left Occipital	95°	88.75°	6.25°
Right Occipital	95.50°	88°	7.50°

The average range from the maximum to the minimum was 6.91°.

The average of the whole of the left side of the head was 93.83°, of the right 92.92°, there being a difference of .91°. The maxima and minima ran thus:

	Maximum.	Minimum.	Difference.
Left side	96°	90.83°	6.83°
Right side	95.25°	90°	5.25°

The average range of the sides of the head from maximum to minimum was 6.04°.

The average of the whole head, exclusive of the vertex, was 93.51°, the maximum 96.09°, the minimum 89.75°, the range 6.34°.

The average of the temperatures taken in the mouth was 99.68°, the maximum 100.50°, while the minimum was 99°. This average is somewhat higher than it is generally supposed to be, and yet it is in striking accord with that obtained by Dr. J. Davy,[1] in his series of researches upon 114 subjects of both sexes, of different ages, among various races and latitudes, and with various atmospheric temperatures. His mean was 100°, the highest temperature 102°, the lowest 96.50°. It is a curious coincidence that the mean temperature of the atmosphere in his investigations was about the same as in mine. Of this I feel quite positive, although I have no exact notes of this factor in my own cases.

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[1] Carpenter's "Physiology," edited by Francis G. Smith, M. D.: Philadelphia, 1876, p. 529.

The temperature of the vertex was taken in persons whose hair was decidedly thin, or who were bald. The hair at the sides need only be encountered at the Occipital Stations. At the brow and above the ear the thermometer can always be placed directly upon the skin; and even at the occiput the hair can be pushed to one side to so large an extent as to interfere but slightly with the result, as I shall presently endeavor to show. At the vertex, however, the hair is usually very much thicker, longer, and more difficult to dispose of, rendering observations of the kind of which I am treating extremely variable and uncertain. I regret to state that for these reasons my cases have been limited to 13—too small a number upon which to base positive conclusions, but which I hope to supplement at some future day with others. I have not thought it worth while to detail the temperature at the four individual stations, nor of those to the left and right of the great longitudinal fissure, as they are all too closely approximated to render this procedure of any value, but rather to calculate the average of the whole vertical quartette. This was 91.67°. The maximum stood at 94.50°, the minimum at 88.37°, the range from maximum to minimum being 6.13.°

The temperature of the whole head, inclusive of the vertex, was 92.66°, the maximum 95.02°, the minimum 90.67°, the range from maximum to minimum 4.35°.

I have endeavored to ascertain what difference was effected at the Occipital Stations by the hair. I have, therefore, compared the temperature at these spots of thirteen thin-haired persons with the temperature at the same points in thirteen thick-haired individuals. In those with thin hair the average on the left was 92.62°, standing at 92.11° on the right. The thick-haired possessed an average on the left of 92.19°, on the right of 91.38°. The average elevation of temperature obtained in the thin-haired above those whose hirsute covering was more abundant was .58°, or slightly above one-half of one degree.

The effect of mental exercise upon the temperatures has been exceedingly variable. My observations only number four, and I do not cite them to demonstrate a general law, which can only be established by more extended study, but simply to contribute in some slight degree to this study. In the first of my subjects, a very intelligent physician, after reading ten minutes, the only rise was one of .50° at the Right Parietal Station. In the second person, a young student, ten minutes reading produced an elevation of .75° at the Left Parietal Station, and one of .50° at the Right Frontal. My third case, an eminent physician of an active and profound mind, was tested after a vivacious lecture, and yielded the following figures: A decrease of 1.67° at the Left Frontal, an increase of 2.50° at the Left Parietal. On the right side there was an increase at each of the three Stations amounting to .67° at the Frontal, to 1° at the Parietal, to 2.50° at the Occipital. Yet the average of the whole left side amounted to .98°, whereas that of the whole right descended .28°. The average of the whole head, however, exclusive, of course, of the vertex, which was not taken into account for this purpose, was raised .25° by the lecture. The fourth observation varies still more remarkably. It was made upon a distinguished professional gentleman, who is a well-known writer and an active lecturer, and was taken after a lecture delivered in the full tide of a medical term. On the left side the Frontal and Occipital Stations fell .25° and 2° respectively, and the Parietal rose .50°. The Right Frontal rose .50°, the Parietal 1°, while the Occipital fell off .75°. The average of the left side was .69° higher after the lecture, whereas that of the right was .25° lower. But the average of the whole head was elevated 1.17°. The averages computed from these figures showed, nevertheless, that the psychical labor had increased the actual evolution of heat in general, however much it might vary at particular points, the average of the whole head having ascended .14°, the average of the left side .19°, the average of the right side .07°. In this connection I desire to call attention to a fact lending support to the theory which I have advanced in regard to the relative functional activity of the third left frontal convolution. In three of these four cases there was an elevation of temperature at the Left Parietal Station of from 2.50° to .50° ; the average ascent of the four subjects was thus .89°. In other words, there was very generally, so far as these scanty figures show, an increased amount of caloric given off in the neighborhood of the third left frontal convolution, and the average of this amount was greater than the average of the increase at any other point.

These observations tally in many respects with those of M. Broca. He states the average of the left and right sides to be respectively 93.20° and 93.02°, while my figures are for the same points 93.83° and 92.92°, standing .63° more on the left and .10° less on the right. Again, according to him, the average of the whole head is 92.87°, and the maximum and minimum are affirmed to be each 94.75° and 91.04°. I found this average to be 92.66°, or .21° lower than he did, and the maximum and minimum to be 95.02° and 90.67°, or .27° higher in the former and .37° lower in the latter. These variations are so trivial that they may readily be explained by the great disproportion between the number of M. Broca's cases and my own. Indeed, to my mind the difference is so slight that I even deem it worthy of being regarded as evidence of the remarkable uniformity of the cerebral temperature. I cannot look upon it as a mere coincidence that the temperature of twelve young men, who were selected for experiment with great precautions as to similarity in age, intellect, and surroundings, should approximate so closely to the temperature of 102 individuals, who were purposely selected, so to speak, with carelessness.

It will have been observed that the range from the maximum to the minimum temperature is a large one when compared with that of the axillary or buccal temperature. For instance, in my cases the buccal temperature ran over a scale of 1.25°, the maximum rising to .58° above, while the minimum was .68° below the average. In the cerebral temperatures, on the other hand, the average range at the lateral stations was 6.91°, while at the vertex it was 6.13°. *A priori* it might well be supposed that the production of heat within the cerebrum would fluctuate within much wider limits than it would in the body. The wonderful complexity of the functions of the brain; its almost ceaseless activity; the ease with which it is animated or depressed by innumerable internal and external influences; the manifest provision for normal fluctuation of the vascular supply within comparatively wide limits, as is evidenced in the greater amount of contractile fibre in the cerebral arteries relatively to the peripheral vessels, as well as in the arterial expansion which is permitted by the peri-vascular spaces: all point to this organ as one in which the molecular changes proceed with unrivaled vivacity and variability, and in which the evolution of heat would be characterized by equal rapidity and variation. Can we then, in the face of this large range of the temperature of the normal brain from maximum to minimum, make any diagnostic use of the thermometer? Let the ensuing figures answer this question. In 61.84 per cent. of the observations, the temperature stood either at the average, or from 1.13° above to 1.14° below. In 77.95 per cent. of the cases, the temperature was either at the average, or from 1.64° above to 1.70 below. In 86.23 per cent. of the personages examined, the temperature was at the average, or from 2.13° above to 2.26° below. In 64.33 per cent. of the cases, the temperature at each of the lateral stations on the left was higher than that of the corresponding stations on the right. In 10.33 per cent. the temperature at each of the lateral stations on the left was the same as at the corresponding stations on the right. In 25.33 per cent. of the cases, the temperature at the lateral stations on the right was higher than at the corresponding stations on the left. The average of the whole of the left side was higher than that of the right in 70 per cent. Finally, the average of the whole of the right side was higher than that of the left in 30 per cent. *In other words, when the temperature goes beyond one and a half degree above or below the average, there will be only 22.05 persons in every hundred in whom it would be normal; when the temperature surpasses about two degrees above or below any average, there will be only 13.77 individuals in a hundred in whom this temperature would be normal; and only 25.33 persons out of a hundred will display a* *higher temperature at any station on the right side than at any corresponding station on the left.*

In view of all these facts, I feel myself warranted in drawing the following conclusions:

1. The average temperature of the Left Frontal Station is 94.36°, the Right being 93.71°.

2. The average temperature of the Left Parietal Station is 94.44°, the Right being 93.59°.

3. The average temperature of the Left Occipital Station is 92.66°, the Right being 91.94°.

4. The average temperature of the left side of the head is 93.83°, the right being 92.92°.

5. The average temperature of the whole head, exclusive of the vertex, is 93.51°.

6. The average temperature of the motor region of the vertex is 91.67°.

7. The average temperature of the whole head, inclusive of the vertex, is 92.66°.

8. If there be an alteration of temperature at any of the lateral stations of more than one and a half degree above or below the average temperature of such station, this fact will justify a *suspicion* of abnormal change at that point.

9. If there be an alteration of temperature at any of the lateral stations of more than two degrees above or below the average of such station, this fact will constitute *strong evidence* of the existence at this station of abnormal change.

10. In proportion as the alteration of temperature at any individual station is increased or decreased beyond the figures just mentioned, in exact proportion will the strength of the evidence be increased as to the existence of abnormal change at that station, until, the maximum or minimum having been passed, the evidence will become almost conclusive.

11. Should it so happen that such elevation of temperature above the average should be at any lateral station on the right, causing a rise at this point beyond the average temperature at the corresponding station on the left, this would strengthen the suspicion or the evidence.

12. These remarks apply with equal force to the average

for the whole of either side, as well as to the average for the whole head.

13. It is necessary to the validity of these conclusions that the contemporaneous bodily temperature should be normal, or that there should be a marked disproportion between it and the cerebral temperatures.

Through the kindness of my friend, Dr. Frank W. Rockwell, of Brooklyn, I have been enabled to test the value of these deductions in a very interesting case of tumor of the brain, which I was courteously permitted to report to the New York Neurological Society, at its meeting on June 3d of this year, and of which Dr. Rockwell will soon publish a full account. The patient was a female, aged thirty-four. There was present a typical "choked disk," marked pain in the temple and brow, becoming unbearable in paroxysms, nausea, vomiting, ptosis, paralysis of the ocular muscle. The first paroxysm of pain came on January 21st. The bodily temperature ranged near the normal. Upon these symptoms a diagnosis of intra-cranial tumor was made, probably situated at the base. Placing my thermometers upon the head, I ascertained the temperature at the different stations to be as follows:

	Left.	Right.
Frontal	96.75°	98.33°.
Parietal	95°	99.75°.
Occipital	96.75°	100.50°.

The average of the two sides, if calculated, will be found to be 96.16° on the left, on the right 99.52°, the average for the whole head being 97.84°.

The rise above the normal averages is startlingly apparent. At the Left Frontal Station it was 2.39°; at the Left Parietal, 56°; at the Left Occipital, 4.09°; at the Right Frontal, 5.12°; at the Right Parietal, 6.16°; at the Right Occipital, 8.56°; while the average of the left side had mounted above the normal 2.33°, the right side 6.60°, and the average of the whole head 4.33°!

This particular observation was taken as I was at the outset of my study of the subject, and was made with my first set of thermometers, which, as I have already stated, were defective. I have satisfied myself, however, that the defect amounted to but a little over one degree. If, therefore, from these figures one and a half degree be deducted, all fear of error may be dismissed; and yet the increase is unmistakable. About this date (March 4th), I wrote Dr. Rockwell: "I shall certainly expect to see inflammatory changes from the base of the fissure of Sylvius backward along the occipital lobe, as well as that these changes shall be spread around the base of the fissure." The patient died March 16th. At the *post mortem* at which, much to my regret, circumstances prevented my attendance, there were present Drs. Rockwell, Arthur Matthewson, and E. S. Bunker. The meninges were found apparently normal, with the exception of a slight congestion. At the base of the brain the membranes and skull were to all appearances healthy. But a soft, jelly-like tumor, the size of a hazelnut, was found between the horizontal or posterior branch of the fissure of Sylvius and the first temporal fissure, while the whole of the right occipital lobe was converted into a colloid, extremely vascular mass, which gave way under examination, this degeneration also extending anteriorly to the tumor as far as the fissure of Sylvius. There was no apparent disease except at these points. Upon microscopical examination, I ascertained the tumor to be a typical glioma, thickly strewn with small extravasations of blood.

This is, I believe, the first case on record in which a diagnosis of the locality of an intra-cranial morbid growth has been made with a thermometer, and afterward verified by a *post-mortem* examination.

I cannot resist the conviction that these data are sufficient to enable the profession to employ the thermometer with profit in the diagnosis and localization of cerebral affections. I trust that experience will substitute proof for my conviction. I am now engaged in the study of the pathological aspect of this question. My material is not yet ripe for publication, but I expect at some future day to be able to communicate to the profession further details as to the exact possibilities of this subject.

Art. III.—*Nasal Catarrhs and their Treatment.* By J. Oscroft Tansley, M. D., Assistant Surgeon to Manhattan Eye and Ear Hospital; Surgeon to Northeastern Dispensary, Department cf Eye, Ear, and Throat.

It is not my desire or intention to write a lengthy or extended article upon this subject, but only to state my experience clinically, and the treatment which I have adopted, and find usually most beneficial. Clinically I divide nasal catarrhs into three varieties, to wit: congestive, secretive, and ozænic; many other divisions could be made, according to the conditions found present, as œdematous, hypertrophic, polypoid, necrotic, ulcerative, strumous, specific, etc.; but these are dependent upon the causes, or the chronic continuance, of the catarrhal process, and may be considered as natural sequences rather than any capital division or class. It may be asked why I do not use the term *simple* in contradistinction to ozænic catarrhs? It is because the word simple, by general acceptation, has been taken to mean *not specific*, while both ozænic and non-ozænic catarrhs may be either simple or specific in their nature and origin. I think that all cases may be grouped under these three headings, mentioned above, and that these divisions will certainly indicate the therapeutics of the affection.

Congestive.—This is more particularly found among children from infancy to eight, ten, or twelve years of age, and in those of strumous tendencies, or of syphilitic parentage. There is little or no secretion; if any, it is thin and watery in its character. The chief trouble is the difficulty of breathing through the nose, and at night the child will sleep with the mouth open, which will become dry and parched by the undue evaporation of its secretions. The child will be continually snuffing and picking at his nose, in vain attempts to clear from it the something which impedes his respiration. The mucous membrane will be seen reddened, swollen, puffed out, as it were, almost closing the passages; the skin, face, head, and general conformation of the body, will be that of one or both of the diatheses mentioned above; but they are so well known that it will be unnecessary to particularize. The so-called Hutchins's teeth, and a peculiar arching of the hard palate, to which considerable importance is attached by some, will occasionally be seen in these patients. Interstitial keratitis also will sometimes complicate. These cases are very annoying, and very troublesome, and must be treated generally and locally. The diathesis must be met with suitable medication and dietary; this latter must always be examined into and regulated, for the indulgent parent—educated or uneducated — in his inconsiderate kindness, in giving to the child whatever it cries for, is slowly undermining its health. No child, healthy or otherwise, and particularly the class I am now considering, should be permitted to indulge in the promiscuous dietary of the adult. Milk should form the chief food of every child, and tea and coffee should never be permitted under the age of at least twelve years. Our other therapeutics must be adopted to relieve the stasis or congestion of the parts.

It is not, as I understand it, an hypertrophied condition of the mucous membrane, because, if we get a discharge of serum, or an exosmosis, we relieve the symptoms. I have succeeded admirably with such cases, by giving hydrargyrum, kalii iodidum, or syr. ferri. iodidum, and oleum morrhuæ, according to the diathesis, and to relieve parts giving ammonii chloridum, solutio Fowleri, etc., and applying to the parts the vapor of iodine, or painting with glycerine, pure, or united with acidum tannicum, or kalii iodidum, in proportion of x, xx, or xxx grains of the former, and ʒss to ʒi of the latter, to the ounce of glycerine. The glycerine produces a copious discharge of serum, or an exosmosis, in a similar way that it does in gynæcological practice, and usually gives relief at once. But these applications are only palliative, and our chief dependence is upon internal medication to attack the diathesis, plenty of out-door exercise, and tonics generally.

The secretive and ozænic catarrhs differ, simply, in the character of the secretions; and as the treatment must be, from necessity, greatly alike, differing only in some minor points, I will describe these two conditions, and then give the therapeutics together. The secretions of the former differ, as to amount and character, in the different cases which come under our notice; some being a thin, watery, serous fluid, others being a thick, tenacious, greenish, and purulent secretion, in large quantities, and extremely disagreeable. The mucous membrane varies, as to its condition and appearance, according to the severity and continuance of the affection. One common condition is that of œdema, seen sometimes on one or several turbinated bones, but usually on one or both sides of the vomer, and seen best with the rhinoscopic mirror. It is often seen bulging out like thickened mucous membrane, or unpedunculated polypi, and is often diagnosed polypi; but by pressing upon it with one's probe, the œdematous nature of it is at once seen, for it flattens like a bag of water, and shortly bulges out again to its original size and shape. This is caused by the lax condition of the parts, and the lack of tonicity in the vessels, promoting an extravasation of serum into the submucous connective tissue. The catarrhal secretion also gives evidence of the want of tonicity of the parts, in the fact that it is more a watery, serous effusion than a hypersecretion of mucus. The therapeutics peculiar to this condition is pressure upon the œdematous parts, by tents, etc., to induce an absorption; the use of glycerine, solutions of magnesii sulphas, or chloride of sodium, to induce an exosmosis, and astringents to contract and give tonicity to the parts; but, after all, we may be tempted, and perhaps obliged, to twist off the swollen parts with a pair of polypus forceps, and trust to the subsequent cicatrization.

As the tendency of all chronic catarrhs is to hyperplasia of the connective stroma of the mucus membrane, and of the submucous connective tissue, either locally as polypi, or generally as thickened membrane, we have these conditions present, as we pass on, in severity, and find the membrane reddened, thick, succulent, and velvety, or local thickenings and polypi.

The treatment of the hypertrophic condition is such as will induce absorption, and stay the catarrhal process; and of the polypoid growths, is to twist them off with forceps.

The next worst condition is ozæna. Here, united to the disagreeable discharge, we have the all-pervading, disgusting, and nauseating odor, sometimes to such an extent that it is almost impossible to remain in the same room with the unfortunate sufferer, and the person, although otherwise healthy, and desirous of partaking of the pleasures of society, must, because of this affliction, remain in seclusion, a nuisance to himself and to his friends, who, from necessity, must associate with him. The cause of this odor is usually the putrid decomposing secretions; but sometimes it is owing to a peculiar dyscrasia or idiosyncrasy on the part of the patient, the same that is found in the perspiration of some people who, though not perspiring to any great extent, and who pay ordinary attention to cleanliness, yet are annoyed by the peculiar effluvia arising commonly from the feet, but sometimes from the person, and is proverbial with the African race. In those cases of ozæna which have come under my observation, I think I have noticed—in contradistinction to the secretive catarrh—a general tendency of the secretion to inspissate, or coagulate into lumps, which hide away and stick in the various nooks and corners of the nasal cavity, and which decompose and become black and putrid, and at times are most difficult of dislodgment. This tendency to coagulate and putrify, and the peculiar dyscrasia which gives the tendency to odor, seem to be all the distinctive features between non-ozænic and ozænic catarrhs.

Sometimes there is necrosis of the turbinated bones, or vomer, which of course gives a most disagreeable odor, but a necrosis case is not necessarily an ozæna, neither are there necessarily ulcerations or necrosis in ozænic cases, as many other than specialists imagine. It may be a simple or specific secretive catarrh with necrosis, or an ozænic catarrh with necrosis. The word ozæna—as I view it—should be confined to the catarrh having the peculiarities mentioned above, that is, the tendency to coagulate and putrify, or possessing in itself the tendency to odor; but as it is always difficult to make this distinction, all foul-smelling catarrhs are denominated ozænic cases.

One of the most common experiences in examination of nasal cavities is to find malformations, or absences, in part or wholly, of the turbinated bones, without a trace of ulceration or evidence of necrosis; and the inexperienced surgeon, getting a history of bad odor, continuing for some time, at once jumps to the conclusion that there has been necrosis, whereas it is simply and solely a malformation of the parts. I remember once, in the beginning of my treatment of this class of cases, I came across one in which there was not a trace of a turbinated bone in the right nasal cavity, only simply a fold or elevation of mucous membrane where the bones are usually attached. It was a somewhat remarkable case, in the fact that the opening into the sphenoidal sinus could be distinctly seen, and a probe passed into it. I took the case to one of our specialists in that department, as an instance of healed necrosis. He said: "If you will show me the piece or pieces of bones which was or were there, and which you saw or know to have been removed, I will say this has been a case of necrosis; but if you cannot, I will call it a case of malformation." And this has been my subsequent experience. Necrose cases are very much less common than is ordinarily supposed; and when present they are subject to the same rules and general guidance as necroses elsewhere. In the treatment of these secretive and ozænic cases, cleanliness is the first requisite; without it nothing can be done.

To attain this cleanliness, and the thorough application of the local medications, various methods have been adopted: the anterior and posterior nasal syringe; Thudicum's nasal douche; the atomizer; and I have introduced into my practice the swab, and the cleaning of the parts, under inspection, at stated intervals. Thudicum's nasal douche I never use, because of the great danger of acute otitis media, as is attested by the numerous reported cases, and the many cases which have come under my own observation, some of which have been quite dangerous.

It is unnecessary to write at any length on this point, and I will only say that no person has any right to recommend the douche to a patient, certainly not without pointing out the dangers attending its use.[1]

The anterior nasal syringe I also never use, because of the same objections. The posterior nasal syringe I use in my office, and put a modification of it, consisting of a bag instead of the usual barrel and piston syringe, but having the same nozzle to pass behind the velum,[1] into the hands of my patients for daily home use. The posterior nasal syringe or douche is difficult to use by the patient, but by perseverance they attain great dexterity; I have never had but one patient who did not succeed in using it.

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[1] "Notes on Douche."

Its safety more than compensates for the additional trouble, and it also has the advantage of educating the throat for future examinations, and operations with the rhinoscopic mirror. The atomizer I use for those able to afford the expense. Early in the beginning of my treatment of chronic suppurative catarrh of the middle ear, I recognized that one cause of my failure to relieve, or cure, and also the failure of other practitioners whose patients I saw in consultation, or otherwise, rested on the one fact that the parts were not sufficiently well cleaned. It is so easy to syringe out the ear of a patient, or have him do so himself, with a carbolized solution, and then instill therein the necessary medication, that we easily fall into this habit, and then, because we do not cure, deem it incurable. Even after carefully syringing out an ear, if we examine, there will be seen pieces of tenacious mucus remaining in the various parts of the cavity; and now, if we instill the solution—argenti nitras, for instance—there is an insoluble, impervious coating of albuminates formed, which effectually covers the diseased parts, and prevents the effect or benefit we had anticipated from the application.

Early recognizing this point, I adopted the suggestion of Dr. D. B. St. John Roosa, and thoroughly cleaned each ear with my cotton probe, using my forehead mirror and aural speculum; and then, with the cotton moistened with the solution to be applied, I touched the diseased parts, and none other. Reasoning, then, from analogy, that as similar conditions were present in simple and ozænic catarrh; also, that if it was difficult to clean the aural cavity with a syringe, it would be much more difficult to clean the nasal cavity, because of the impossibility of using anywhere near the same amount of force: I therefore adopted the method of "cleaning under inspection," and now my course is first to use the posterior nasal syringe to moisten the secretions; then sitting down before my patient, I carefully examine the diseased parts by use of the forehead and rhinoscopic mirror and nasal speculum; and then, with a liberal supply of cotton handy, I roll a wad of cotton on my probe—a steel wire with an enlarged end for handle—and thoroughly swab and clean every available part of the cavity; and it is no unusual but the usual thing, by these means, to get out large masses of inspissated, black, and decomposing mucus, that are most disgusting, nauseating in appearance and odor. I am often working in this way, on the first or second visit, for half an hour upon each cavity or nostril, and sometimes have to resort to forceps to remove these inspissated masses, which often have the appearance of necrotic bone, but upon examination it will be seen that they are not. This difficulty of removal, even when using the forehead mirror, shows how next to impossible would it have been to succeed with a syringe or nasal douche. It is a disagreeable and most unpleasant mode of procedure, I admit, but I know of no better, easier, or safer way to success, and this has led me to use the syringe simply as an auxiliary in the treatment of catarrh, and not as the essence, as many practitioners seem to think. After thus thoroughly cleansing the parts, I make such applications as I deem necessary, either with the swab moistened in the solution, or with the atomiser or the powder-blower. The solutions I use are the ordinary ones, of alumen, acidum tannicum, zinci sulphas, argenti nitras, etc., with or without glycerine, as are the indications; and the powders I use are iodoformum alone, bismuthi subnitras, with morphia or pulvis cubebæ, or argenti nitras. A powder much used by me—suggested by Dr. Andrew H. Smith—with the action of which I have every reason to be satisfied, is as follows:

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[1] Warner's catarrh douche.

℞.	Argenti nitratis crys.,	gr. x, xx, or xxx.
	Bismuthi subnitratis,	℥ i.
	Kalii sulphatis,	ʒ i.

Misce et fiat pulvis.

It is a long time since I prescribed any disinfectant solution, as carbolic acid or permanganate of potassium, excepting in some cases, which were unable to see me as often as I desired, or where there was some necrotic condition, which could not be removed at once; but I have depended almost entirely upon salt and water, and the manner of cleaning as above. I see my patients at first not less than three times a week; then afterward less often, as the conditions seem to indicate. Usually after the third visit the odor has entirely disappeared, and the secretions have become more normal, and less in quantity; but there are a large number of these patients whose condition can only be ameliorated, and the limit of accomplishment consists in teaching the patient to treat and keep himself in the improved condition into which a few occasional visits will put him. The general treatment of these cases is well understood by the profession; the diathesis must be met with the appropriate medication, and, in addition, such medicaments as act upon the mucous membrane, as potassic and ammonic chlorides, turpentine, cubebs, arsenic, etc. Of the preparations of cubebs, the oleoresina seems to be preferable, given in doses of x to xx gtt. in sugar; but the powder and tincture are useful, and a favorite prescription of mine is as follows:

℞.	Ferri et quiniæ citratis, *or*	
	Ferri et ammonii citratis,	ʒ i.
	Solutionis Fowleri,	ʒ ij.
	Tincturæ cubebæ,	ʒ iij.
	Tincturæ gentianæ compositæ,	
	Tincturæ cardamomi compositæ, āā,	℥ ij.

Misce et signa.
Cochleare minimum ter in die, post cibum.

It is not my intention to give formulæ for general treatment, or topical application, for each case requires different or varying quantities in the same formula, adapted to each individual peculiarity or indication. Each case is in itself a study as to diathesis, condition, and temperament; and he who studies them with the greater understanding, and without regard to routine practice, will prove himself most successful in the treatment.

NOTES ON DOUCHE.

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Clinical Records from Private and Hospital Practice.

I.—*Short Notes of Forty-three Consecutive Cases of Fracture occurring between January* 30, 1877, *and May* 30, 1878. By Oscar J. Coskery, M. D., Professor of Surgery, College of Physicians and Surgeons, Baltimore.

No. 1.—Henry R., aged seventeen, miner, was caught under "cage" of elevator in a tunnel, and admitted into St. Joseph's Hospital, Baltimore, January 30, 1877, with following injuries: Simple fractures of middle third left humerus, of left femur, and of left tibia and fibula; a lacerated wound of scalp, a contusion of left side of abdomen into which at least a pint and a half of blood was extravasated, and a large laceration of the skin over upper portion of left gastrocnemius muscle, laying it bare to extent of a space six by four inches. The anterior splint was used for the lower extremity, the rectangular wooden for upper, and cold was applied to scalp and abdominal extravasation. The patient went out well August 23, 1877, with a good arm, and shortening of left lower extremity of about 1½ inch. The boy is now at work and walks with scarcely a limp, with a sole on his left shoe of one inch in thickness. The difficulty in this case was the treatment of the large lacerated wound over left calf. This was dressed with dry lint for first week, and then with carbolic cerate.

No. 2.—Patrick F., aged thirty-two, laborer, while at work on Gunpowder tunnel, near this city, was caught by large piece of rock rolling upon his left thigh. Admitted June 4, 1877, with compound comminuted fracture left femur, lower third, involving condyles; an inch of anterior half of the circumference of the femur was found lying loose in anterior wound, and extracted. The internal flexor muscles of the thigh were exposed over a space two by three inches. Dry lint was applied to each opening, and the limb put upon the double inclined plane for nine weeks. The patient left hospital, January 22, 1878, with only one inch shortening, and is now at work as a day laborer. The application of the dry lint converted the compound into a simple fracture in the course of four days.

No. 3.—Jacob W., aged eighteen, railway hand, was shot on night of riot in this city, July 20, 1877, and admitted one hour after reception of wound. Bullet (a Minié) had entered right thigh, one inch outside track of femoral artery, and about half an inch below Poupart's ligament, and passed out through fleshy part of buttock, same side, one inch behind great trochanter. Diagnosis, compound comminuted fracture of upper part of shaft of femur, and of great trochanter. Several small pieces of bone were removed and limb suspended in anterior splint—great discharges, followed by hectic and rapid emaciation, made their appearance; but under quinine and cod-liver oil, patient did well. The splint was taken off September 19, 1877, and patient left on crutches with good use of limb and three-fourths of an inch shortening, October 10th. On March 22, 1878, wound was still discharging, and small spiculæ of bone could be felt with probe. Was then following his business as a butcher; and with a heel to his shoe one-half inch in thickness, the limp was scarcely perceptible.

No. 4.—George C., aged seventeen, wounded in same riot as above and admitted at same time, with a bullet hole through middle third of left femur. Hæmorrhage was so great that all the loose pieces could not be extracted. A tourniquet was applied loosely (precautionary) and next day limb suspended. Four days afterward patient was handed over to my colleague, Prof. Brown, under whose care patient did very well, leaving hospital in October, 1877, with nearly two inches shortening. At present time of writing the wound is still open; and in all thirty-eight pieces, great and small, of bone have come away. They give, however, so little trouble, that patient wishes no operation, and he has a good, strong limb.

No. 5.—Patrick L., aged forty-three, laborer, admitted September, 1877, with compound fracture right femur extending obliquely downward and outward through outer condyle, produced by large rock falling on limb. The hæmorrhage was very free, with a great amount of oil globules floating on top of escaping blood. The suspension apparatus was soon changed for the double inclined plane, a piece of dry lint was applied to the wound, and the patient left the hospital, at his own request, seven weeks after injury, with no deformity or shortening. He used his limb for locomotion, though cautioned, and two months afterward one-half inch shortening and some deforming were present.

No. 6.—Patrick K., aged fifty-four, laborer, was admitted December 3, 1877, having been crushed under sand-bank one hour before. On examination a simple fracture of upper third of right femur and of lower third left fibula, with considerable bruising of trunk, was found. The femur was suspended, the left leg put up in starch, and patient left hospital with one inch shortening of right limb on February 23, 1878. When seen lately was very well.

No. 7.—George K., aged eighteen, butcher-boy, fell into ice-house, thirty-five feet, producing a compound comminuted fracture of left femur near middle third. On admission he was unconscious, and, never rallying from this condition, died of shock forty-two hours after reception of injury.

No. 8.—Patrick O'R., aged forty, miner. A large piece of rock fell upon lower portion of left leg, producing a simple fracture of both bones, with tendency to inversion of foot. The limb was put up in starch; patient walking on crutches in four days, and apparatus taken off seven weeks after reception of injury, when result was found to be perfect.

No. 9.—Murty M., aged twenty-five, miner, stepped down three steps, and produced a comminuted fracture of both bones of left leg. The break through the tibia was very oblique, and, on account of the over-riding (1 inch) and the muscular spasm, the limb was put up in the extension apparatus devised by myself, and first described in the NEW YORK MEDICAL JOURNAL, August, 1876. Four weeks afterward was put up in starch, and seven weeks from time of injury point of fracture was not detectable.

No. 10.—John W., aged sixty, had been treated in an apparatus for three weeks for a very oblique fracture of both bones of right leg. On account of the deformity present, the same apparatus as in above case was put on, with decided amelioration. He went out well in December, 1877.

No. 11.—Michael McG., aged twenty-six, laborer, fell 15 feet, on October 31, 1877, landing on his feet, since which time he says he could not use his right foot. Admitted November 16th, or seventeen days after accident. Found plantar surface of foot turned inward, inner border of foot looking upward, and decided depression over tibia about 1 inch above ankle-joint. Diagnosis was fracture of tibia at that point, unreduced. Under ether, an attempt was made to refracture, but was only partially successful. A Dupuytren's splint was applied on outer side of leg, and patient left hospital on December 14, 1877, able to put sole of foot to the ground.

No. 12.—Timothy W., aged thirty-one, laborer, fell 20 feet, catching foot between two stones and body falling forward. On admission three hours afterward, November 12, 1877, found plantar surface of right foot turned outward, inner side of foot looking downward. Diagnosis: Pott's fracture. Put up in wire extension-splint (as above) for eighteen days, and then in starch. Left hospital well, December 29, 1877.

No. 13.—George W. (colored), aged twenty-five, oyster-shucker, was admitted December 7, 1877, having been shot in upper portion of tibia on 1st inst. Walked a square to his home, but soon pain and swelling of knee-joint obliged him to seek hospital-relief. Under ether, the direction of the bullet was found to be directly backward, smashing the upper part of the tibia, but not penetrating the joint. The swollen joint was aspirated, but no pus was found. Under the circumstances, the whole limb was suspended; the patient did perfectly well, and left hospital on January 9, 1878, well. His highest pulse was 110, and temperature 100.8°.

No. 14.—Jacob H., aged twenty-one, Norwegian sailor, fell from aloft, producing a simple fracture of both bones of left leg. Admitted February 18, 1878. Limb was put up in plaster of Paris, and patient left, well, in April.

No. 15.—Bernard G., laborer, aged eighteen, in good health, was struck by lower step of a passing "caboose-car," and admitted into hospital during latter part of April, 1878, with a compound comminuted fracture of both bones of right leg, probably opening tibio-tarsal joint. Great sloughing and swelling came on; but wound is now granulating healthily, and boy is doing well under cod-liver oil and iron.

No. 16.—George S., aged forty-two, laborer, was caught under sand-bank, and doubled up. Admitted early part of May, 1878, with compound comminuted fracture of both bones of left leg. Hæmorrhage was considerable, muscular spasm persistent, and over-riding 1 inch. The wire extension apparatus was applied, and patient has been ever since perfectly comfortable. He is still under treatment. Dry lint was used over the wound.

No. 17.—William B., aged twenty-five, shoemaker, while drunk, went to sleep upon roof of one-story shed. Some time during night he rolled off, and was picked up unconscious next morning. On admission, June 20, 1877, consciousness had returned. Examination revealed a scalp-wound, about 5 inches in length, extending horizontally, and involving upper portion of left parietal and small part of left frontal. At bottom of this wound a fissure of the skull, following same direction, but with no tendency to depression. Cold-water dressing was applied; no untoward symptom occurred, and patient left hospital, well, July 9, 1877.

No. 18.—William D., aged eighteen, an expressman, was shot in the head in night of riot July 20, 1877, the bullet (a small Minié) striking about 1 inch above centre of left orbit, and extending horizontally backward to a point opposite front of helix. The wound of scalp was linear, and looked as if produced by a sharp-cutting instrument. (It was said to have been produced by a sabre.) Through this wound a mass of brain-substance, about size of a hen's egg, protruded. A small portion of cerebral convolution was found upon pillow. Hæmorrhage was free, but controlled at last by ice and compression. Patient could not be roused by speaking to him, but touching him near the wound would make him shrink. Pupils widely dilated, skin cold, respiration slow, but pulsation accelerated. Fourteen hours after injury the rag that had been applied over the wound was found firmly adherent, and on taking it off, where brain-substance had been the night before was now occupied by blood-clot. On removing the clot, free hæmorrhage took place from middle meningeal artery, requiring torsion. The brain-substance could be seen deep down, giving the characteristic pulsations. Patient never recovered consciousness, and died forty hours after reception of injury. *Post mortem* revealed loss of substance of frontal bone, 1 inch by half an inch, not large enough to admit bullet. The left middle lobe of cerebrum was soft and pultaceous, and in it pieces of bone, gunpowder, and of bullet, shaved off upon edges of wound of bone.

No. 19.—Patrick R., aged thirty-three, miner, while drunk, on April 13, 1878, was knocked down and kicked about head, trunk, and face. Lay insensible from about 10 P. M. to 4 A. M. Admitted April 16th. Clotted blood was found filling right auditory canal, together with a lacerated wound of helix. Blood, he says, came from inside of ear. Great ecchymosis of right upper eyelid and of ocular conjunctiva. Right pupil contracted. Besides these, he had a cut over left malar bone, and was bruised about fifth left rib. Patient stated that his nose did not bleed, but that he vomited about 4 ounces of blood on the morning after being beaten, but not since. On examining right ear, the tympanic membrane was found ruptured. Pulse, 74; respiration, 15; costo-abdominal temperature, normal. No wound could be detected inside mouth. A large black stool passed to-day—17th—for first time since injury. Diagnosis: Fracture base of skull, extending through orbital plate of frontal and petrous portion temporal—right side. Not a bad symptom appeared, and patient left hospital April 27, 1878, well.

No. 20.—Frank B., aged forty, was shot at 12 midnight on May 3, 1878, bullet entering near inner angle left lower eyelid (No. 1 cartridge-ball). There was great ecchymosis of upper lid, and eyeball was pushed forward. The patient never spoke after being shot, but complete coma came on, and he died three and a half hours after reception of injury. A *post-mortem* examination revealed that the bullet had passed through orbital plate of sphenoid bone, coursing upward and backward, entered the middle temporal convolution, and gone clear through the left hemisphere, passed out of the brain-substance near the left parietal eminence. It did not have momentum sufficient to carry it through the parietal bone; had fallen down, and was found upon tentorium cerebelli, in left cerebral fossa. The left middle cerebral artery was cut, and the patient died from hæmorrhagic compression. A large clot filled the track of the bullet, and communicated with the posterior corner of the left lateral ventricle. I should state that there was no irregular muscular movement, and that complete paralysis came on slowly.

No. 21.—Jacob B., aged thirty-nine, gardener, admitted July 13, 1877, with fracture eighth right rib, result of fall. Went out comfortable, but still wearing plaster splint, July 20, 1877.

No. 22.—Henry G., aged thirty-seven, miner, was struck by flying piece of rock, and received fracture seventh rib. Crepitus plain, but no great tendency to displacement. Patient went out, still wearing plaster splint, on December 20, 1877, one month after admission.

No. 23.—Timothy S., laborer, aged forty-seven, fell upon right side, producing fracture of tenth right rib. Localized pleurisy and considerable obscure pain followed, but patient left, well, still wearing plaster, on January 17, 1878, five weeks after injury.

No. 24.—Patrick B., aged forty, miner, was knocked down and kicked brutally in the face. On admission, August 29, 1877, there was mobility of two halves of lower jaw upon each other, and when patient closed his mouth the two median incisors separated. The right median incisor was very loose, but allowed to remain, it not preventing fragments coming together. (It, however, had to be extracted nine months later, never having formed adhesions.) An abscess formed under jaw; a large quantity of pus was let out, and patient left hospital, able to chew solid food, on October 22, 1877. The four-tailed bandage was used. In May, 1878, several pieces of necrosed bone were removed. The diagnosis in this case was fracture through the symphisis.

No. 25.—Annie F., aged seventy, fell a couple of steps and struck upon elbow. On admission, March 9, 1877, crepitus was distinct at lower end of humerus, and elbow was broadened. No dislocation. Diagnosis, fracture of humerus near condyles. Rectangular splint used, and she left hospital well on May 8, 1877.

No. 26.—Thomas S., aged eleven, came to the clinic for an unreduced dislocation of both bones of left forearm backward, of three weeks' standing. Under ether, the dislocation was reduced, but the inner condyle was fractured. This was put up in starch, on rectangular pasteboard splint, and four weeks afterward passive motion adopted. A bony growth made its appearance at site of fracture, which very seriously interfered with motions of joint; so that, in January, 1878, three months afterward, when last seen, the movement was not good.

No. 27.—Henry M., aged twenty-three, dredger, was struck by "derrick-crank" on outer side of right humerus, producing a fracture of lower third. Admitted October 10, 1877. Rectangular splint applied, and taken off November 26th. Left well December 1, 1877.

No. 28.—Mrs. D., aged thirty, housekeeper, fell about three feet, striking upon anterior portion of shoulder. Ad mitted May 12, 1878 (next day). Ecchymosis confined to shoulder and inner side upper arm. Crepitus distinct; no deformity, but considerable swelling of joint. Diagnosis, fracture of anatomical neck of humerus. The regular cap and rectangular splint was used, and patient left, doing well, but still wearing apparatus, on May 26, 1878. Is still under observation.

No. 29.—James G., aged twenty-one, laborer, was struck on middle third of left forearm with a twenty-pound sledge-hammer. Admitted February 1, 1877, with fracture of radius about centre. Straight splint was used, and patient left hospital March 25, 1877, with good, strong arm, but with very perceptible deformity.

No. 30.—John R., aged thirty-two, laborer, admitted April 23, 1877, with compound comminuted fracture of right radius, produced by an iron "plumb-bob" falling some 100 feet upon his forearm. Sloughing followed, and several pieces of bone were extracted. Straight splint was used, and patient left hospital, without permission, but with wound nearly closed, and with good union taking place, on May 20, 1877. He has been at work nearly ever since.

No. 31.—Owen S., aged thirty, miner, while holding drill for mate was struck with sledge-hammer, on outer side of forearm, and admitted July 16, 1877, with simple fracture of right radius, middle third. Again deformity persisted in despite of all efforts to contrary. Straight splint was used, and he left with good arm September 15, 1877. Returned February 28, 1878, for pain referred to wrist, and left improved in about three weeks.

No. 32.—Mary O., aged thirty-eight, housekeeper, fell two steps, striking upon palm of right hand. Had been treated for two weeks for "sprain of wrist." The injury was an impacted Colles's fracture. Patient left with characteristic deformity, and suffering from pain and stiffness of fingers, on September 20, 1877. Two months afterward, very slight amelioration of symptoms had taken place.

No. 33.—James D., aged forty, laborer, admitted into City Hospital December 10, 1877, with all the typical signs of Colles's fracture, from fall upon palm. Pistol-shaped splint applied, and patient left, doing well, January 14, 1878. Has not been seen since.

No. 34.—Michael M., aged thirty, teamster, while very drunk, on February 24, 1878, was run over by a city passenger-car, producing a compound comminuted fracture of both bones of left forearm. Was sent to hospital for amputation. An attempt was made to save the arm ; and, notwithstanding great sloughing came on, and considerable deformity has resulted, still the patient is now doing well, and promises to have a good, useful arm. Still under observation.

No. 35.—Peter F., aged twenty-seven, laborer, was struck with sledge on radial side of left forearm, May 8, 1878, producing a simple fracture of radius, middle third. Put up in straight splint, and is still in hospital, doing well.

No. 36.—William S., aged thirty-three, clerk, fell off high wagon-seat, and struck outer and upper portion of left forearm upon a small stone. On examination, there was no movement of either condyle, flexion and extension of forearm was perfect, pronation tolerably good, but supination impossible, except to very limited degree, and with great pain. A slight depression below head of radius; and, at that point, distinct crepitus. Diagnosis, fracture through neck of radius from direct violence. Arm was put on pasteboard splint, and not seen again.

No. 37.—George McR., aged five, fell from curbstone, April 20, 1878, and fractured transversely the right radius and ulna. There was no deformity, and arm was put up in plaster of Paris, on 24th of April, and taken down May 30, 1878. Result good.

No. 38.—John M., aged forty-one, blacksmith, fell, striking ulnar side forearm upon a sharp piece of rock, producing a simple fracture of middle third of ulna. Admitted July 20, 1877. Straight splint applied, and patient left well, September 3, 1877.

No. 39.—John S., aged fifty, fell, striking ulnar side of left forearm upon curbstone, producing simple fracture of middle third. Straight splint. Union was slow but good. Treated as out-patient at City Hospital.

No. 40.—John C., aged twenty-seven, miner, while standing 300 feet from blast was struck by a flying piece of rock, on ulnar side of right forearm. Admitted May 25, 1878, with a compound comminuted fracture of ulna, two inches above carpus. Some small pieces of bone were removed, and patient is still under observation. Rectangular splint was used.

No. 41.—Manus G., aged thirty, miner, admitted May 24, 1878. Three days before fell down a bank, doubling his left hand under him. On admission, a prominence was detected over middle of fifth metacarpal bone of left hand, reducible on extending little finger, with plain crepitus. Diagnosis, simple fracture fifth metacarpal bone. Extension was made by adhesive plaster, and patient, still in hospital, is doing well.

No. 42.—Peter C., aged twenty-two, miner, fell, striking upon outer extremity of left clavicle. On admission, next day, August 13, 1877, there was no deformity or crepitus, but, from absolute inability to raise arm from side, fixed pain at one spot, and a seeming depression there, the diagnosis of fracture of clavicle between conoid and trapezoid ligaments was made. Two weeks afterward callus was plain. Patient was treated in a sling, and left well, September 21, 1877.

No. 43.—Richard F., aged fifty-five, laborer, was caught by falling wall in early part of September, 1877, and received a simple fracture of left clavicle, together with fracture of sternal attachment third rib of same side. The rib was forced behind sternum, and could not be reduced. Treatment was with pad in axilla, and patient left hospital, still suffering from obscure pains in chest, in October, 1877, but with good union of clavicle.

Remarks.—Of these 43 cases (in which, as will be seen, 47 different fractures occurred), three died—one of the thigh, from shock, two of the head, from cerebral compression.

Leaving these cases out, and taking up the varieties *seriatim*, we find, of the six remaining fractures of the thigh, four of which were compound comminuted and two simple, a good result in all. Such a termination of these consecutive compound injuries, I think I may flatter myself, was unique.

Of both bones of the leg, four were good, one partially so, and two (one compound and one simple) are still in hospital.

Of the tibia alone, one was good, and one, not seen until nearly three weeks after the injury, only partially.

Of the fibula alone, both good.

Of the remaining two fractures of the skull, result was perfect.

Of the fractures of the ribs, three good, one not; depression continuing.

Of the jaw, very good.

Of the humerus, two good, one partially so, and one still under observation.

Of the radius alone, four good (one of which was compound comminuted), two presented deformity, and one is still under notice.

Of both bones of the arm, one (compound from railway injury) is still under notice, doing well, one (simple fracture) has just been discharged with good result.

Of fractures of the ulna alone, the union was perfect in two, one (compound) is still under observation.

The fracture of fifth metacarpal is still in hospital.

Of fractures of the clavicle, result perfect. One of these made the second case of fracture between the conoid and trapezoid ligaments that I have ever seen.

II.—*A Successful Case of Intra-venous Injection of Milk.* By W. E. Bullard, M. D., New York, Visiting Physician to the Demilt Dispensary.

John M., aged twenty-eight years, native of New York, carpenter. Patient has always enjoyed good health up to three months ago, when he complained of slight pain in the umbilical and epigastric regions; this was referred to dyspepsia, but he did not seek advice for it. Food taken into the stomach would occasionally increase the above-mentioned symptom. Patient naturally anæmic; but this condition gave him no trouble.

On the morning of May 26, 1878, while on a visit at a friend's house, he was suddenly seized with a feeling of great oppression over the stomach, and almost immediately vomited a quantity of partly digested food, mixed with dark blood, some of which was clotted. Great relief was at once experienced; and after returning to his home and resting till evening, he again went out calling with his sister. During this visit he drank a glass or two of beer, and soon afterward the same desire to vomit compelled him to retire, and again dark blood, with lighter blood mixed with it, was vomited. The quantity raised at this time was considerably larger than in the morning.

This second attack left him very weak. He went immediately home and lay down, but was obliged to rise three or four times during the night, to either vomit, or have a passage from the bowels, and now dark blood showed itself in the matters passed per rectum.

On the following morning a teacupful of pure blood was vomited, and at different times during the day smaller quantities were either passed per rectum, or vomited. He had, by this time, become extremely weak, and was unable to sit up in bed without feeling faint.

A request having been left at the dispensary for a physician, my assistant, Dr. J. J. Buckley, called upon the patient at twelve o'clock the same day and found him in the condition above described. The doctor estimated the quantity of pure blood thrown off just before his arrival to have been one pint. A hæmostatic was ordered, together with an opiate, and perfect rest and quiet enjoined.

I saw the patient, with the doctor, the next day. Condition worse. No rest had been obtained during the night. Severe frontal headache was complained of, and vertigo on attempting to rise. A feeling of nausea was experienced at times; but the vomiting of blood had ceased. The stools still showed evidence of decomposing blood. Countenance perfectly blanched. The conjunctiva, lips, tongue, and inside of mouth were pale, the entire body, in fact, presenting marked exsanguination. Temperature in the mouth, 99½°; pulse, 140, very weak and compressible.

Ordered fluid extract of ergot, in half-drachm doses, to be given if hæmorrhage recurred, and left directions to apply pieces of ice over the stomach if any bleeding was suspected; happily these remedies were not required. A hypodermic injection of morphine was given to insure rest. The diagnosis made at this time was hæmorrhage from a gastric ulcer of the stomach.

The heart and lungs were examined and found healthy. There was heard over the aorta a soft anæmic murmur. For the next two days the patient's condition remained nearly the same. No more blood was vomited, and the evacuations from the bowels were only slightly tinged with black blood.

May 31st.—Patient growing weaker and can take nothing into the stomach but small quantities of milk. Rest had not been obtained for two nights, on account of the excessive headaches. His condition in the evening (of same day) was considered critical. At this time the trial of the injection of milk was suggested to me by my associate, Dr. Hanks, and I determined to give my patient the benefit of its use. I was led the more readily to do this on account of the brilliant results obtained by Prof. Thomas, in three reported cases, full accounts of which had been published only a short time previous, in the May (1878) number of this JOURNAL. Accordingly, the next morning I performed the operation, being kindly assisted by Drs. H. T. Hanks, T. E. Satterthwaite, J. P. Munn, and Horatio Bridge.

A new milch cow was obtained, and driven to the yard of the rear tenement where my patient lived. The apparatus used was similar to that described by Dr. Thomas, consisting of an eight-ounce glass funnel, a rubber tube 18 inches long, and a silver canula such as is used in transfusion of blood.

One end of the tube was slipped over the small end of the funnel, the other secured safely to the canula. This apparatus was kept in carbolized water until required, and, before being used, was thoroughly washed with warm water. Two layers of carbolized muslin gauze were tied around the mouth of the funnel, and similar layers over the top of a large glass graduate, the latter being placed in a vessel of warm water, and the milk, when needed, strained direct from the cow into the graduate.

The cephalic vein of the left arm was then exposed, and, after some difficulty, the canula introduced, and 7 ounces of warm milk allowed to flow into the vein. Time of the injection, about three minutes. The funnel was raised above the arm as high as possible. The wound was closed with two sutures, and carbolized cloths applied under a roller bandage.

During the injection the patient experienced great fullness in the head, and complained of feeling faint. A hypodermic injection of a drachm of brandy was immediately given, and this same quantity repeated fifteen minutes after, when soon the unpleasant symptoms passed away. The pulse was 125, temperature 100°, before the operation; and immediately afterward the former had increased to 132, and was stronger, while the latter remained the same. Half an hour afterward patient had a marked chill, lasting fifteen minutes. The temperature rose to 103¾°; pulse, 150. This fever-stage was followed by profuse sweating, and at the end of two hours the temperature had fallen to 101°; pulse, 130.

4 P. M.—Patient feels much better; the headache is less severe, and some sleep has been obtained.

Milk and small quantities of beef-tea were allowed, and tablespoonful doses of brandy given every two or three hours.

June 2d, 8 A. M.—Marked improvement in all the general symptoms. Patient says he feels stronger, and his voice and actions confirm the statement. Some sleep obtained during the night. Temperature, owing to some local cellulitis around the wound, has risen to 104¾°; pulse remained the same as on the previous afternoon.

The subsequent history of this case is interesting, and may prove instructive.

On the third day following the operation the cellulitis of the arm had increased in extent. There was some pain and swelling in the lymphatic glands of the axilla. The skin over the bicipital region was tense and shining, and an erythematous blush appeared about the wound, and gradually spread over the upper part of the arm. The sutures were taken out, and the wound allowed to gape. Cloths, wet in a weak solution of carbolic acid, were first applied to the swollen part; but these were soon changed for a mixture consisting of collodion and camphor (about equal parts). This was painted over the inflamed surface, and gave great relief. Wound granulating slowly.

4th.—Slight, chilly sensations were experienced this morning, followed by a rapid rise in temperature, till 106° was reached. Quinine was ordered, 5 grains being given every four hours.

5th.—Chill at 3 P. M., followed by fever and sweating.

Patient is taking an exclusive milk diet, from three to four quarts being consumed daily. At the end of the first week from operation, the condition was much improved as regards strength, notwithstanding the high fever and sweats.

9th.—Slight chill at 5 P. M., followed by a more pronounced rigor at 9 P. M., both these rigors being succeeded in regular order by fever, sweating, and rapid fall in temperature. Quinine given in larger doses, but its administration did not seem to have any effect subsequently in either reducing the fever or controlling the chills.

10th.—Patient seen by Dr. Satterthwaite, at my request. We found his condition somewhat worse. Wound looked unhealthy, an ichorous discharge ran from it, and the lower portion was covered with a layer of false membrane, which was greenish in color. Pyæmia was at this time feared.

12th.—Induration of arm increased. Two soft points, indicative of suppuration, were felt along the course of the cephalic vein, just above the wound.

15th.—Opened a superficial abscess, and about a tablespoonful of healthy pus was evacuated; the cavity left was thoroughly disinfected. The forearm now began to swell, especially on its outer side. The radial vein could be felt under the fingers as a hard cord. Fluctuation was soon perceptible at different places along the course of the vein, and, on incision, small quantities of healthy pus removed. After this the arm did well.

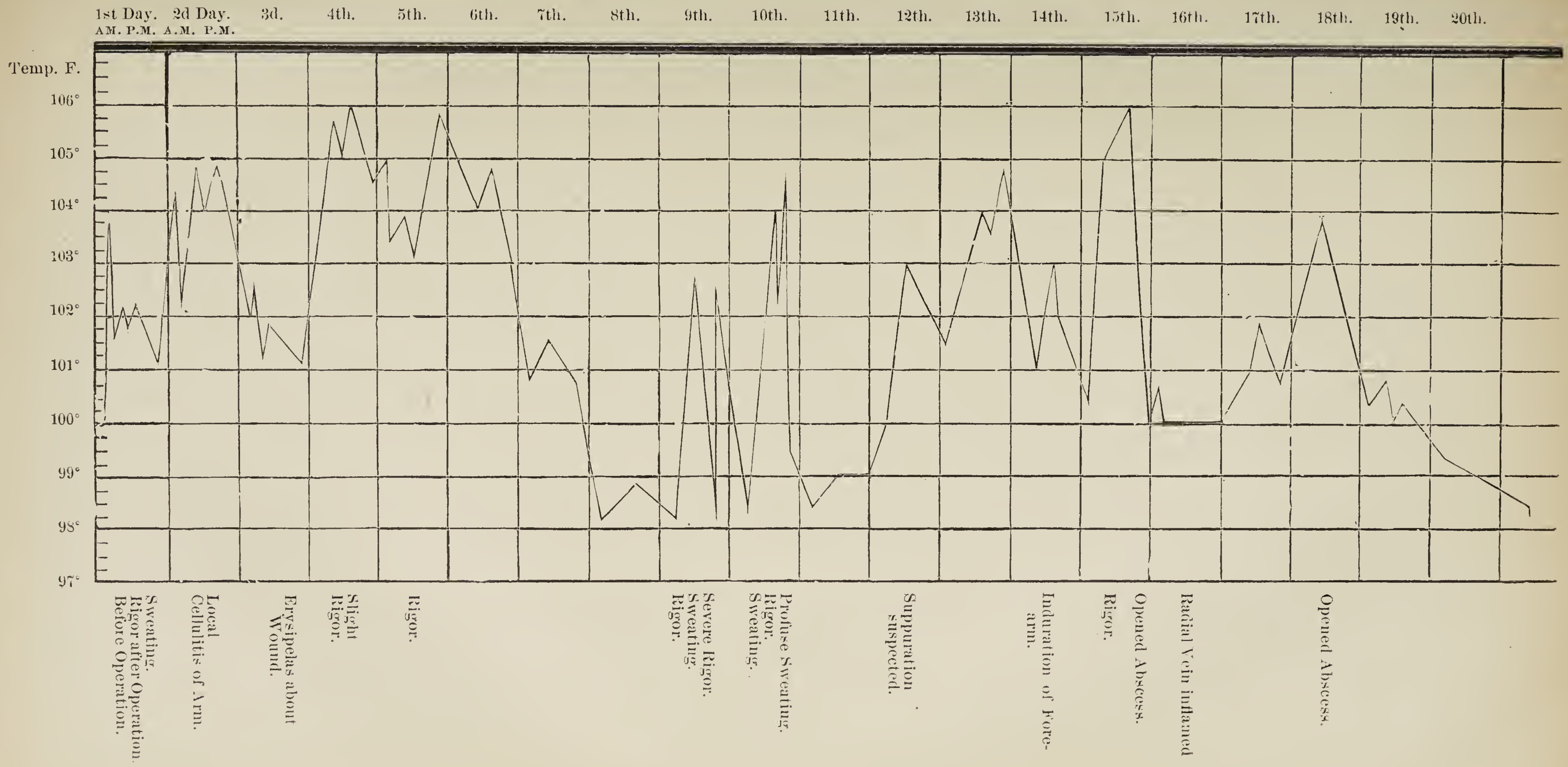
July 2d.—Patient reported at the dispensary this morning, feeling well and quite strong.

In regard to the unpleasant features developing in this case, viz., the cellulitis and subsequent phlebitis, I can suggest two possible causes for their occurrence:

1. During the operation the canula did not at first enter the vein, but passed between it and the cellular tissue; consequently, about a drachm of milk ran into these tissues. This accident was quickly remedied, and the canula introduced safely into the vein.

2. I was called to visit a patient on the afternoon of the day of operation, and found a woman suffering from severe erysipelas of the leg. Was obliged to open an abscess; and, although every precaution was used in the way of disinfection

Temperature Table in a Case of Intra-Venous Injection of Milk, followed by Suppurative Phlebitis.



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before returning to my first patient, still contagion may have been carried from the one to the other. Whatever may have been the cause of the unfavorable symptoms in this case, they would in no wise deter me from the use of injections of milk in the future, should its employment be indicated; but I should use greater care.

In conclusion, I would state: 1. That the permanent effects of the introduction of milk directly into the circulation in this case fully justified its use; 2. If my diagnosis of the disease was correct, a wider range is given to the class of cases in which "intra-venous lacteal injections" can be used.

The accompanying diagram indicates the temperature variations, and presents a condensed history of the marked features of the inflammation of the vein.

III.—*Selected Cases from the Clinic for Diseases of the Throat, College of Physicians and Surgeons, New York. Some Cases of Laryngeal Paralysis.* By URBAN G. HITCHCOCK, M. D., First Clinical Assistant.

THE comparative rarity of this class of affections, even among the large number of throat diseases that come under observation at the college, determines for the following histories an interest which, viewed in its pathological and therapeutical relations, is only surpassed when we come to consider the causes here concerned in reference to the question of prognosis. Two of the cases now reported afford good illustrations of pathological causative conditions which lie at a distance from the larynx, and the existence of which was not suspected until, during the use of the laryngoscope, their remote effects were incidentally discovered in the larynx itself.

CASE I.—Mary C., aged twenty-four, married. Admitted to the clinic October 9, 1877. Gives an account of syphilis contracted from her husband eight years ago. Had manifestations of the regular development of the disease, at intervals, up to March, 1877. At this latter date she began to suffer from a bad cold and sore throat, and ever since this time has been hoarse. Upon examination of the larynx with the aid of the laryngoscopic mirror, the left vocal cord is observed to be absolutely without motion, either during phonation or deep inspiration, remaining fixed in the position so aptly characterized by Von Ziemssen as "cadaveric," namely, midway between flexion and extension. This latter peculiarity, although not pathognomonic of loss of conduction in the recurrent laryngeal nerve, was suspicious, and amply sufficient to cause the existence of such a condition to be surmised. Of all pathological states which, by exerting pressure on the left recurrent laryngeal nerve, may cause loss of conduction in its fibres, aneurism of the arch of the aorta stands foremost, both in point of efficiency and in frequency of occurrence. It was accordingly sought after in the present instance, and with the result as anticipated. The close relation to the artery preserved by the nerve in its course around the aortic arch often exposes the former to pressure and stretching, when an aneurism shall develop at this point; and, as this nerve supplies all of the muscles that act on the left vocal cord, the inference is plain. It is worthy of remark, however, that instances have been met with in which marked interference with the relations of the recurrent laryngeal by even a very large aneurism of the arch is not accompanied by appreciable disturbance of the functions of the nerve. As in analogous displacements of some other nerves, the stretching may occur so gradually as to permit a process of accommodation to take place.

Case II.—Kate McH., aged nineteen, single. Admitted June 12, 1877. Was quite robust till eight years ago, when she had a very severe attack of typhoid fever. Says that she had "congestion of the lungs" at the same time. She has been quite delicate ever since, and very liable to get colds on her chest. In June, 1876, she took cold in consequence of exposure at night, and in the course of this illness had much pain in the right side of her chest. Upon her apparent recovery the voice was found to be imperfect, both in singing and talking, and has continued hoarse up to the present date. The laryngeal image in this patient presented a view of the right vocal cord in the position described in the last case, and it was only during forced phonation that even an extremely slight motion could be detected. Phonation was accomplished, as in all cases of unilateral laryngeal paralysis, by the unaffected cord being drawn by the combined action of the unparalyzed laryngeal muscles—especially by the lateral crico-arytenoid—past the median line of the glottis until it lay nearly parallel to and in contact with the opposite and motionless one; and thus a vocal sound, although necessarily very imperfect, was produced. Furthermore, as a result of the excessive action of the internal thyro-arytenoid muscle, the arytenoid cartilage on the unparalyzed (left) side was tilted forward, and its summit thus made to pass across and in front of that on the paralyzed side, while there was a simultaneous depression of the left *processus vocalis.* In this, as in the previous case, there was to be inferred a possible interference with conduction in the course of the nerve supplying the affected side of the larynx. Pressure of an aneurism of the right subclavian, around which artery passes the right recurrent laryngeal nerve, is recognized as an interesting analogous cause to that which existed in the case first reported. But the age of this patient was decidedly unfavorable to the supposition of the existence of aneurism of any kind, and a careful physical examination failed to discover one. Eliminating hysteria, muscular strain, phthisis, and such toxæmic causes as lead, arsenic, diphtheria, syphilis, a further prosecution of the physical examination led to the discovery of a condition which has no analogue in the pathology of the left recurrent nerve. This condition, as evidenced by the signs, was a thickening consequent upon an old pleurisy at the apex of the right lung; and, as the right recurrent nerve is in relation (although not invariably) with the pleura at the point indicated, this thickening suggested an explanation of the paralysis. This result could hardly have followed a pleurisy of the left apex, for here the left recurrent nerve is only rarely and exceptionally in relation.

CASE III.—Frederick H., aged thirty-two years. Admitted October 23, 1877. When in full possession of his voice, was a very excellent tenor singer. But throughout the past summer he took part in cabin concerts on board of an excursion steamer, and thus subjected his larnyx to an almost unremitting strain during many hours of the day, exerting himself to the utmost to drown the many adverse voices with which of necessity he had to contend. Although toward the end of the season his voice gave him much trouble on numerous occasions, he was always able to continue with the particular effort in which he chanced to be engaged without attracting much attention to the defects; and, after a short rest, he would apparently recover completely. At the termination of the above engagement, and while he was singing in public in this city, October 8th, instant, his voice failed more seriously than ever before. However, he persisted in performing his share of the entertainment until its close, when, upon attempting to speak, he found the difficulty much more marked than he had experienced in singing. When he rose the next morning his notes were so hopelessly defective as to preclude his continuing the engagement. The laryngeal picture presented (October 23d) the following features: The right vocal cord was absolutely motionless, and fixed in a position of extreme extension, thus calling into play during phonation the most extensive compensatory action of the muscles on the unparalyzed side of the larynx. An exhaustive search for interference with the right recurrent laryngeal nerve, at any point of its course, failed to elicit the faintest sign of any such cause, which was, in view of the history and the elimination of other causes, attributed to muscular strain. Accordingly the daily application of the faradic current, by means of Mackenzie's laryngeal electrode, was prescribed and at once entered upon. As the flexors of the right side were manifestly at fault, it was deemed advisable to apply the current as directly as possible to the lateral crico-arytenoid. Therefore, the positive electrode having been placed externally over the thyroid cartilage, the negative one was introduced, guided by the mirror held in the fauces, and its point pressed gently into the right pyriform sinus, immediately over the muscle which it was our main purpose to stimulate. In addition to this special method, faradization was also applied generally to the larynx by two sponge-electrodes, used externally. The other part of the treatment consisted in the use of gr. $\frac{1}{20}$ of sulphate of strychnia three times a day. The progress of the case is given in the following notes, based on entries made during the period:

Nov. 16th.—Until to-day not the slightest improvement has been detected, except that during the application of electricity externally the tones were improved. It is now observed that there is slight curvilinear contraction, but absolutely no other motion, of the right vocal cord. The dose of strychnia has gradually been increased to gr. $\frac{1}{10}$.

Dec. 13th.—Under the daily use of electricity and the continued exhibition of strychnia, some movement of the cord toward flexion has been noted.

Dec. 19th.—Flexion more extensive.

Dec. 21st.—To-day at his mid-day meal, having previously taken his dose of strychnia (which with the utmost caution had been increased to gr. $\frac{1}{6}$), he experienced in a more marked manner than previously the physiological effect of the drug. This was manifested most perceptibly in irregular contractions of the muscles of his upper extremities, and at the same time he found that he would occasionally and unexpectedly utter a word or two in a perfectly natural voice. Information of this being communicated by the patient at our daily session a few hours later, he was directed to discontinue the medicine until otherwise advised.

Dec. 24th.—The electricity has been continued daily, and the voice almost completely restored.

Dec. 26th.—About the same. To resume the medicine in doses of gr. $\frac{1}{24}$ as a tonic.

From this time improvement advanced, and the interval between the electrizations was gradually increased until a month later, when they were being made twice a week. Soon afterward they were suspended, and the patient allowed to practise the scale ten minutes every day. After a few weeks of this exercise he returned to his regular employment of singing in public, but had to abandon many of his old songs on account of an unreliability in certain notes of his singing voice.

IV.—*Vomiting of Pregnancy—Parotiditis—Death.* By D. McLean Forman, M. D., Freehold, N. J.

On the 25th of April, 1878, I was called to attend Mrs. C., aged twenty-two, and obtained from her the following history:

She has always enjoyed good health up to about three months ago, when she became pregnant with her first child. Since then has suffered more or less from nausea and occasional vomiting, the latter symptom for the past two weeks occurring daily, so that the stomach rejected most of the food she swallowed. On account of this excessive vomiting, she sought my advice. An examination of the patient at this time revealed nothing special beyond debility due to the excessive vomiting. During the first ten days that she was under observation her case differed in no respect from those cases we occasionally see of the "obstinate vomiting of pregnancy," and during this time the medical treatment consisted in the use of the following remedies, each in its turn following the previous one when it was found useless, viz.: Coffee in the morning before rising, champagne, camphor-water, bismuth, bromide of potassium, chloral in the rectum, ingluvin, morphia, etc. All of these drugs, as well as food of all kinds, were vomited as soon as swallowed, so that I for the last week confined the patient entirely to rectal alimentation. Of course, under this excessive vomiting the patient was all the time growing weaker, and became bedridden (though I had her daily carried to her carriage for a drive, hoping that the fresh air might prove of benefit), so that I was thinking of trying the effect of dilatation of the cervix uteri, not yet having seen Dr. Simm's paper on cauterizing the cervix in these cases, when on my daily visit the patient called my attention to a slight enlargement and tenderness of the left parotid gland. I examined the throat, but could discover no inflammation. On visiting the patient the following day, I found the gland swollen as large as a hen's egg, very hard and tender, while the accompanying constitutional disturbance was very violent, pulse 140, temperature 104°, and delirium resembling that of puerperal mania. All vomiting ceased with the first development of the parotiditis, and has not returned, so that the patient readily takes nourishment and medicine.

At my request, Dr. Vought saw the patient in consultation, and from this time attended her with me. During the next week there was no improvement in any of her symptoms, pulse ranging from 120 to 140, temperature never below 104°, while the delirium was of the most active character, requiring the constant presence of attendants to prevent the patient leaping from bed to escape her imaginary tormentors (people trying to bind her with cords, dogs chasing her, etc.), when she was not under the influence of large doses of chloral, which was the only thing that would quiet her. The gland continued to enlarge, and on the seventh day, suppuration being detected, it was opened, and about two drachms of pus evacuated. In spite of the supporting treatment given the patient, she was worn out by the violence of her constitutional disturbance, and died on the seventh day from the development of the parotiditis. During the progress of the latter disease there was no evidence (if the delirium be excepted) of any brain lesion.

The chief points of interest in the case, to me, are the inflammation of the parotid gland as a complication of pregnancy, the subsidence of the vomiting upon the development of the parotiditis, seeming like a metastasis, the acute mania attending it, and the termination of the case, and, I might add, the utter worthlessness of drugs in controlling these cases of obstinate vomiting of pregnancy.

Notes of Hospital Practice.

ST. FRANCIS'S HOSPITAL.

Malarial Sciatica.—Some interesting cases of malarial sciatica have been under observation in the service of Dr. J. H. Ripley.

The first one was of particular interest, inasmuch as it had been treated for hip-joint disease. The history was as follows: A girl, aged eighteen, complained for two years of severe pain, referable to the hip, knee, and inner side of thigh. The diagnosis of hip-joint disease was made, and the patient placed under treatment by means of extension, but without benefit. When examined, on admission, she was found to have her leg drawn up, and to be suffering from severe pain. Her general health was good, but at intervals she had attacks of cranial neuralgia. The temperature varied from 98½° to 103°. The treatment consisted in the administration of five drops of Fowler's solution, with ten grains of quinine, three times a day. The attacks of pain quickly subsided, and after a week she was well. The patient had been living in a malarial district before coming to hospital.

The second case was that of a man, aged thirty-five. He suffered from sciatica for two months before coming under observation. Forty grains of quinine were given daily in divided doses. After two weeks he was completely well.

The third case was of a man, aged forty, who had sciatica for a month. Treatment was commenced by hypodermic injections of carbolic acid. These were discontinued, inasmuch as they did not seem to be of much benefit, and caused abscesses. Quinine was given to the extent of twenty-five grains daily. A cure was established in three weeks.

Punctured Wound of the Foot; Death; Embolic Pneumonia; Pyæmia.—A man, aged twenty-three, was admitted to hospital, suffering from a small punctured wound of the foot, caused by stepping on a shell while bathing. The patient did well for a week, but at the end of that time complained of pain at the base of the right lung, which was increased by coughing and forced inspiration. An examination of the lung gave evidence of a friction sound, which in two days was replaced by absence of respiratory sounds, and flatness on percussion. On the third day pain was felt in the region of the kidneys. Temperature in the evening, 105½°. The symptoms continued without improvement, resulting in death on the ninth day from the attack, and seventeenth from the injury to the foot.

Post-mortem.—The right lung was the seat of numerous infarctions, occupying principally the lower lobes. Several large abscesses were found, surrounded by areas of pneumonia. Adhesions were also found at the base. The left lung contained small infarctions and abscesses. Numerous bands of lymph extended between the chest-wall, diaphragm, and visceral pleura. Heart normal. The liver and spleen enlarged and congested. They contained several hæmorrhagic spots. The right kidney was the seat of a large abscess and several infarctions.

Acute Pleurisy, with Effusion; Aspiration.—A man, thirty-eight years of age, entered hospital, stating that after over-exertion and subsequent exposure he was seized with pain in the right side, which increased and compelled him to abandon his work. He coughed and expectorated freely. On examination of the chest, fluid was found, which filled two-thirds of the pleura. The usual routine of therapeutical remedies was employed, but without benefit. Aspiration was then resorted to, and three and a half ounces of fluid withdrawn, when it ceased to flow, although there remained a large amount of effusion. After the aspiration, improvement commenced and made rapid progress, the whole of the fluid being absorbed.

MATERNITY HOSPITAL, BLACKWELL'S ISLAND.

The Maternity Pavilion on Blackwell's Island, built by the Commissioners of Public Charities and Correction, for patients coming under their charge, and opened last March, has in no wise been a success, and has for the present been abandoned. It was found that, four or five weeks after occupation, patients confined there developed high temperature. Subsequently several of the puerperal cases died.

It was then vacated, in order to thoroughly disinfect it, but on reoccupation the same condition of affairs was found to continue, and, after three weeks, the patients were moved to the old pavilions near Charity Hospital. All precautions against puerperal disease were enforced, and there yet remains a mystery as to the tendency to high temperatures and disease in the women confined there. It has been surmised that the only explanation was that the building had been erected on a malarial site; but before any definite conclusion can be arrived at, a more thorough investigation will have to be pursued.

MOUNT SINAI HOSPITAL.

Jaborandi in Heart Disease.—A man, aged thirty-eight, entered hospital suffering from dyspnœa. An examination of the chest showed that he had hypertrophy of the heart, with œdema of the lungs. There was a small amount of general anasarca. Digitalis was freely given, but without benefit. Oxygen gas was also administered. Eventually jaborandi was given, and with good results. ʒ iss of the leaves, in the form of an infusion, was ordered *pro re nata.* The patient took it three or four times a day. Shortly afterward he began to expectorate and perspire. Relief occurred within an hour, and the dyspnœa and cyanosis disappeared. As the cyanosis decreased, the pulse improved and became more regular. The patient continued the medicine for three or four days, when death took place from exhaustion.

Neuritis of the Brachial Plexus.—A man, aged thirty, of previous good health, was attacked with cholera morbus. An anodyne was administered, and after its use the patient went to sleep. He awoke six or seven hours afterward and found that his right arm was heavy and dead. Following this the arm lost its power, and began to waste toward the shoulder. On admission there was found extreme atrophy of the deltoid muscle. There was slight motion on the extremity, and but little pain. When the hand was clasped the pain was extreme. The diagnosis made was neuritis of the brachial plexus, due in all probability to pressure caused during the profound sleep following the administration of the anodyne. No history of syphilis could be made out, but it was considered advisable to use inunctions of mercury. Galvanization of the arm was practised twice daily. The condition of the patient has very greatly improved since admission. The arm is increasing in size and strength.

Formation of Artificial Vesico-Vaginal Fistula by Paquelin's Cautery.—Dr. Noeggerath recently used Paquelin's cautery to penetrate the bladder through the vagina. The patient suffered from cystitis. The operation lasted twenty-five minutes, and was not accompanied or followed by hæmorrhage. Afterward the wound was dilated.

Abortion resulting from Examination of the Uterus.—A woman, aged twenty-three, entered hospital suffering from subserous and intramural fibroids. She gave no history of pregnancy; but, on the other hand, a distinct one of not being pregnant. Following the examination an abortion occurred. There then developed peritonitis, septicæmia, and death. The uterus was washed out with a ten per cent. solution of carbolic acid, and the patient seemed to improve. This improvement did not continue, and in a few days she died. At the *post-mortem* the uterus was found to contain subserous and intramural fibroids.

Clinical Reports of the Demilt Dispensary.

DEPARTMENT FOR DISEASES OF THE SKIN.

By Dr. Robert Campbell.

It is intended, in this report, to give a brief outline of the cases treated in my class during the six months from January 1 to July 1, 1878. In order to illustrate the features of the different diseases I will in some instances give histories of cases, together with the treatment adopted.

I have arranged the cases in two tables: in the first, they are placed alphabetically, with the sex of the patients, and the total number opposite each disease; in the second, the varieties of each lesion are given, together with the percentage.

TABLE I.

DISEASE.	Males.	Females.	Total.	DISEASE.	Males.	Females.	Total.
Abscessus	..	1	1	Pruritus	3	2	5
Acne	10	17	27	Psoriasis	6	6	12
Dermatitis	3	8	11	Purpura	1	..	1
Eczema	54	70	124	Roseola	1	..	1
Epithelioma	..	1	1	Scrofuloderma	1	1	2
Erysipelas	4	4	8	Syphilis	8	4	12
Erythema	1	1	2	Tinea	10	2	12
Furunculus	..	3	3	Ulcus	3	..	3
Herpes	4	4	8	Urticaria	9	10	19
Hyperidrosis	..	2	2	Varicella	4	..	4
Impetigo Contagiosa	..	2	2	Verruca	1	..	1
Lichen	3	1	4				
Onychia	1	1	2	Total	138	158	296
Phthiriasis	11	18	29				

TABLE II.

DISEASE.				Number.	Per Cent.
Eczema	Impetiginodes		45	124	41.9
	Papulatum		15		
	Squamosum		13		
	Rubrum		5		
	Intertrigo		1		
	Unclassed		45		
Phthiriasis	Capitis		15	29	9.8
	Corporis		14		
Acne	Simplex		12	27	9.1
	Rosacea		7		
	Punctata		5		
	Sebacea		2		
	Indurata		1		
Urticaria				19	6.4
Psoriasis				12	4.
Syphilis				12	4.
Tinea	Tricophytina	Circinata	5	12	4.
		Barbæ	3		
		Tonsurans	2		
	Versicolor		2		
Dermatitis	Traumatica		4	11	3.7
	Calorica		1		
	Venenata		1		
			5		
Erysipelas				8	2.7
Herpes	Zoster		6	8	2.7
	Genitalis		1		
	Labialis		1		
Pruritus				5	1.7
Lichen				4	1.35
Varicella				4	1.35
Furunculus				3	1.
Ulcus				3	1.
Erythema				2	.59
Hyperidrosis				2	.59
Impetigo Contagiosa				2	.59
Onychia				2	.59
Scrofuloderma				2	.59
Abscessus				1	.29
Epithelioma				1	.29
Purpura				1	.29
Roseola				1	.29
Verruca				1	.29
Total				296	

On looking over the tables it will be seen that, of the 296 patients treated, 158 were females, and 138 males, the former predominating over the latter, as is generally the case in the dispensary practice.

There were twenty-five different diseases treated. No cases of scabies presented themselves during the past six months, a fact worthy of noting, as this disease, more especially in European cities, maintains a high percentage, often reaching as high as twenty-five per cent.

I. Eczema, as is usually the case, occurred most frequently, there being one hundred and twenty-four or nearly forty-two per cent., the proportion of males to females being about five to seven. The impetiginous variety constitutes the greatest number, probably because of the want of proper food and nourishment among the class of patients who visit the dispensary.

Among infants, who are affected with eczema in greater numbers, relatively, than adults, it is marvelous how they manage to live on the food with which they are fed; children under one year frequently being fed on meat, potatoes, and the like, in fact having the same articles of diet as their parents. In such cases, my plan is to restrict the diet, and caution the parents not to give any animal food to the child until it is at least eighteen months or two years old. In addition to giving directions as to diet, the continued application of some mild ointment, such as the unguentum zinci oxidi, often suffices. In cases where there is great anæmia, I give the sirup of the iodide of iron, generally combining it with cod-liver oil. Where there is much itching, oil of cade in the proportion of half a drachm to a drachm to the ounce of unguentum aquæ rosæ will be found to be of decided advantage.

In adults the lower extremities seem to be the favorite situation of eczema, and this is in a great degree accounted for by the fact that their occupation is such as to compel them to stand on their feet during a great part of the day, which gives rise to a varicose condition of the limb, and an eczema results. The cases are usually chronic, and attended by dyspepsia and constipation; the treatment adopted, as mentioned in my last report, is to stimulate the parts, and remove the thickened condition of the skin by some tarry preparation, such as the tinct. sap. virid. co., following it by the application of a soothing ointment. Internally, two or three cathartic pills at bedtime, when necessary, and some stomachic mixture. No patient should be pronounced cured of an eczema until all the thickening of the epidermis is removed. In cases of impetiginous eczema of the head, when the hair is matted together, the parents wish to know if it is necessary to cut it off; you can always say with safety that it is not, the application of ointments will remove the crusts and restore the hair to its original condition.

II. Phthiriasis was found to be present in twenty-nine cases: fifteen of the patients affected had phthiriasis capitis; fourteen had phthiriasis corporis.

In phthiriasis capitis the directions were to soak the head thoroughly two or three times in kerosene-oil, allowing it to remain on twenty-four hours, washing thoroughly afterward, and applying the following, morning and night: ℞. Ungt. hydrarg. ammon., ungt. simplic., āā. M. Attention is often called to the enlarged glands in the neck, and the question asked if they will suppurate. They never do.

For phthiriasis corporis frequent bathing is ordered, changing the underclothing two or three times a week, and the use of this wash, every night: ℞. Potass. caustic. ʒi, acid. carbolici ʒij, aquæ ad ℥iv to ℥viij. M.

III. There were twenty-seven patients who had acne. I include under this head seborrhœa, or acne sebacea. The youngest person having acne was a girl a little over twelve years of age, who had had the eruption for nearly a year before she came under my care; the oldest was a man, aged sixty, who had seborrhœa capitis, all cases of seborrhœa being included under the term acne sebacea. One patient had what might be more properly termed rosacea, simple redness of the nose, with dilatation of the veins; it is placed under this head because it is so nearly allied to acne rosacea.

Most cases of acne were found in girls in whom menstruation was being established, and males about the period of puberty. A great many patients affected with this disease suffer from constipation; in these cases I give pil. aloes et ferri, one three times a day, after eating, reducing the number when necessary; I find that in this way the bowels are moved naturally, and in females menstruation is aided and performed with less difficulty. Careful attention must be given to the diet; such things as pastry, fried and fat meats, beer, spirituous drinks, tea and coffee, should be avoided as much as possible. In persons who are anæmic, preparations of iron and cinchona will be of great use; locally, bathing every morning and night with hot water for fifteen or twenty minutes, and, when there are comedones in abundance, the use of a mild mercurial ointment, or stimulating wash, in addition. In acne sebacea seborrhœa capitis) either of the following ointments will be of advantage: ℞. Ungt. hydrarg. ammon., ungt. aq. rosæ, āā; or ℞. Acid. tannici ʒ i, ungt. aq. rosæ ℥ i—to be applied at night.

IV. Urticaria constituted about six and a half per cent. of the cases, being pretty evenly divided among the sexes, viz., nine were males, and ten females. Most of the cases were caused by some error in diet, and a free purging was sufficient. Some required a tonic treatment, such as this: ℞. Ferri sulph. ʒ i, magnes. sulph. ℥ ss, acid. sulph. aromat. ℥ ss, tinct. gent. co. ℥ iijss. M. A teaspoonful in water three times a day, after eating. Where a malarial taint exists, I give quinine with good results.

V. Psoriasis existed in twelve patients, there being six of each sex affected with disease. One of the cases, which I denominated psoriasis linguæ, would probably be more properly called "leukopathia lingualis," a term lately proposed for certain idiopathic affections of the tongue. The patient was J. G., an Englishman thirty-nine years old. He says that, some time in 1876, he noticed a small vesicle on the upper surface of the tongue, near the tip; this enlarged and spread, being irritated by his pipe. He ceased smoking and the eruption nearly disappeared, when he again commenced to use his pipe, the disease reappearing. The eruption occupies a semicircular position on the upper surface of the tongue, with the convexity toward the pharynx; in the centre the surface is denuded and rather painful, the papillæ projecting prominently; the edges are of a dead-white hue, such as is seen in psoriasis of other parts of the body. The patient has no eruption elsewhere on the body. There is no history of syphilis. Latterly I have been using the dilute mineral acids in the treatment of psoriasis, and in one case the patient has derived marked benefit from its use, the eruption having entirely disappeared, and it is now two months since any of the patches of disease have been seen. It is, however, too soon to say that the patient has been cured, as a person may be free from psoriasis for several years, when it will again suddenly reappear.

VI. Of syphilis there were also twelve cases, eight males and four females. Those affected with the disease did not possess any marked interest. The treatment adopted was a combination of mercury, generally the bichloride, and iodide of potassium.

VII. Under the head of tinea it was thought best to class that form of ringworm occurring in the beard as tinea tricophytina barbæ, in order to distinguish it from another disease of the hairs of the beard known by the term sycosis.

VIII. Dermatitis occurred in eleven cases. There were no cases worthy of note. The lotio nigra was generally used in the form venenata, which is caused by coming in contact with some vegetable poison, as ivy, etc. In the other cases a local soothing treatment is adopted.

IX. The best treatment for idiopathic erysipelas was found to be the tinct. ferri chlor., fifteen to thirty drops every three or four hours, having previously caused a free purging from the bowels. The strength of the patient should be kept up by means of a generous diet. Of the other varieties of disease there is nothing worthy of note except in reference to the treatment of hyperidrosis of the hands and feet. There were two cases of hyperidrosis in females, to both of whom I gave the following: ℞. Acid. sulph. aromat. ʒvj, tinct. gent. co. ℥i, aquæ ad ℥iv—one teaspoonful in water, four times a day. One of the patients says that she began to notice the effects of the medicine in two or three days, after commencing to take it, and in two weeks the sweating was almost entirely suppressed.

This latter drug possesses decided advantages over atropine, mentioned in my last report as a remedy for hyperidrosis, from the fact that it is harmless, and so great a degree of caution is not required.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 16, 1878.

Dr. S. S. PURPLE, President.

Treatment of Colles's Fracture without Splint.—Dr. L. PILCHER, of Brooklyn, read before the Academy an interesting and novel paper on fracture of the distal extremity of the radius. He explained by means of diagrams the mode of its occurrence, and demonstrated the truth of his views by breaking the radius of a cadaver, and dissecting it before the Academy.

He showed that transverse fracture of the radius within an inch of the distal end was due to a force of avulsion communicated through the anterior ligament of the wrist-joint, and due to extreme bending backward of the hand; and, secondly, that the displacement resulted after the fracture from the impetus forcing the upper fragment obliquely upon the lower.

An interesting and important feature in the demonstrations was the *rôle* played by the untorn periosteum, which connected the fragments on the dorsum, the periosteum anteriorly being torn by the injury. This, in the opinion of Dr. Pilcher, prevented the ready return of the displaced fragments and their proper coaptation.

The method of treatmnet indicated by such a condition was to bend the hand and wrist sufficiently backward to free the fragments and relax the tense periosteum, then to make slight extension with pressure on the dorsum, concluding with placing the forearm in the normal position. A strip of adhesive plaster two inches wide is then wound around the wrist as a support. The after-treatment suggested was massage and motion of the hand after the third day.

The use of splints was deprecated, as they met no indication, and in many cases proved injurious.

Dr. Pilcher said that he had treated forty-nine cases of

Colles's fracture, and had also watched many cases in the hands of other surgeons, and was satisfied of the truth of his views.

Dr. F. H. Hamilton thought very highly of Dr. Pilcher's demonstrations.

Dr. Willard Parker agreed with Dr. Hamilton that the views presented were original and based on sound pathology. He questioned, however, if it would be wise to dispense entirely with the use of splints.

Dr. A. C. Post said Dr. Pilcher's demonstrations were so original and so important that he should propose that the name of Pilcher's fracture be given to the injury. He was satisfied of the correctness of the views advanced, and considered that the reader of the paper was entitled to much praise.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, May 27, 1878.

Dr. John C. Peters, President.

Status of Exclusive Practitioners.—The following important correspondence regarding the status of homœopaths came up before the Society. The Comitia Minora offered the correspondence with accompanying resolution :

February 28, 1878.

My dear Doctor: Will you please let me know if, in your opinion, and that of the Comitia Minora, the following resolution, passed at the recent meeting of the Homœopathic State Medical Society, does not absolve the homœopaths from the ban under which they have been placed by the regular medical profession in the "Code of Ethics," Article 4, Clause I.?

Here is the resolution:

Resolved, That in common with other existing associations which have for their object investigations, and other labors which may contribute to the promotion of medical science, we hereby declare that, although firmly believing the principle *Similia similibus curantur* to constitute the best general guide in the selection of remedies, and fully intending to carry out this principle to the best of our ability, this belief does not debar us from recognizing and making use of the result of any experience, and we shall exercise and defend the inviolable right of every educated physician to make practical use of any established principle in medical science, or of any therapeutical facts founded on experiments and verified by experience, so far as in his individual judgment they shall tend to promote the welfare of those under his care.

It looks very much as though in a short time there would be a union of these two opposing sections, a consummation devoutly to be wished if it can decently be done.

I am, dear sir, very truly yours,

——— ——— ———.

To J. C. PETERS, M. D., President Medical Society of the County of New York.

March 11, 1878.

MY DEAR DOCTOR: I have not had an earlier chance to answer your kind notes before. What I wished to have was an official opinion on our right to consult with homœopaths, under the present condition of things, without affecting our standing in the Society. Certainly, as matters now stand, there is nothing to prevent it, so far as the code is concerned.

Yours truly,
Dr. J. C. PETERS, 83 Madison Avenue.

In response to this correspondence the Comitia Minora offered the following resolution :

Resolved, That strict adherence to the proposition, *Similia similibus curantur*, in the selection of medicines, and the rejection of *the aids furnished by anatomy*, *physiology*, *pathology*, *and organic chemistry*, constitute exclusiveness.

Those who do not reject the aids referred to, and who do not prescribe homœopathically when better ways are known to them, are not exclusives. The only exclusives known to the Comitia Minora are a minority of the Homœopathic Medical Society of the county, and the members of the Eclectic Medical Society, the constitution of whose State organization excludes the employment of antimonials, mercurials, and venesection.

At the recommendation of the Comitia Minora, the resolution was laid on the table for a month.

The Dickie Case.—Dr. CHARLES H. NICHOLS, Superintendent of the Bloomingdale Asylum for the Insane, read a paper on the case of Miss Dickie, who for over six years was an inmate of that institution. She was removed by an order of the court, and at the trial the jury decided that she was not insane at the time of examination, and never had been. Dr. Nichols gave in detail the symptoms which he considered proved beyond the possibility of a doubt the fact of her insanity. He criticised severely the charge of the presiding judge, and regretted that it could possibly occur when the history of the patient pointed so unmistakably to insanity.

Dr. Edward Bradley took issue with Dr. Nichols in regard to the nature of the case. He had examined her, and was of opinion that she was not insane.

Stated Meeting, June 24, 1878.

Dr. John C. Peters, President.

The resolution of the Comitia Minora in regard to the standing of exclusive practitioners was taken up for discussion. Some of the members thought that, if the resolution were carried, it would be impossible to distinguish between those who were and those who were not included under the resolution. The question was put and lost by a close vote.

Pott's Disease; its Pathology and Treatment.—Dr. Newton M. Schaffer read a paper on Pott's disease, and considered it particularly in regard to pathology and treatment. He had used both Taylor's brace and the plaster-of-Paris bandage, and thought that each method possessed advantages in certain cases. He exhibited, also, several patients, showing the results which had been obtained by the means of the brace.

Dr. Lewis A. Sayre said that he had used the different braces in the treatment of Pott's disease, and had discarded them entirely and relied on the use of the plaster-of-Paris method in the treatment of all cases of spinal disease. His experience with braces was that the deformity increased instead of diminished. Another disadvantage in their use was the tendency to chafe, and give rise to ulceration. He thought that the original brace of Dr. Taylor was better than his more recent one, for the reason that the cross-pieces over the shoulder prevented the growth of the patient.

Dr. Schaffer said that he had used the brace of Dr. Taylor very extensively, and did not find the difficulties in practice which Dr. Sayre complained of.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, June 12, 1878.

Dr. John C. Peters, President.

Miliary Tuberculosis.—Dr. T. E. Satterthwaite presented, on behalf of a candidate, specimens of tuberculosis of the lungs. The history was to the effect that the patient entered hospital suffering from prolapse of the rectum. During his stay he developed acute phthisis and died. The autopsy revealed miliary tuberculosis of the lungs. The larynx was not involved. Dr. Satterthwaite said that the case presented made the third which had come under his observation, in which the larynx did not present evidence of tubercles, although the lungs were extensively invaded. It would seem to cast considerable doubt on the view that the larynx was the first attacked.

Typhoid Fever; Death.—Dr. Beverly Robinson reported a case of typhoid fever in a man aged eighteen, who died during the second week of typhoid fever. The *post-mortem* proved the correctness of the diagnosis. Dr. Robinson thought that cardiac exhaustion was the only assignable cause of death. Dr. Loomis did not believe, from the appearances of the heart, that death could result from that cause.

Epithelioma of Penis.—Dr. Post exhibited a specimen of epithelioma of glans penis, which he had removed from a man aged sixty. The history of Dr. Post's case dated back for a year, and since that time the disease had been continually advancing. When admitted to hospital the urethra was compressed so as to impede micturation. The usual operation of amputation was performed and the skin stitched to the mucous membrane of the urethra. An operation was performed at the same time for hæmorrhoids. The two operations did not render the condition of the patient unsatisfactory.

Dr. Mason said that, in regard to the question of return of cancer of the penis, he had operated on a case two years ago, and no sign of the disease had yet made its appearance.

Removal of Breast; Ligature of Axillary Vein.—Dr. Post presented a specimen of cancer of the breast which he had removed from a woman forty-six years of age. The pectoralis major muscle was involved, and a large portion of it had to be cut away. The disease extended beneath the lesser pectoral, and it was found necessary to cut that muscle transversely to remove the tumor. When this was done, he further noticed the growth continued along the axillary vessels, and in the dissection the axillary vein was punctured. A lateral ligature was used to close the opening.

Dr. Weir said that he had, in St. Luke's Hospital, a patient upon whom he found it necessary, while operating, to tie a vein laterally. The case was followed by phlebitis and thrombosis.

Dr. Mason had used a lateral ligature without bad consequences.

Dr. Satterthwaite said that Dr. Post's case had a line of enlarged glands above the clavicle.

Obscure Case of Portal Phlebitis; Localized Gastritis.—Dr. Loomis presented the stomach, liver, and intestines of a patient who died in Mount Sinai Hospital. The case was very obscure and no diagnosis was made. The history was substantially as follows: A man aged thirty-two entered hospital, stating that he was attacked ten days previously with pain in the epigastrium, followed by chill and fever. The pain continued four days and then ceased. The night before admission it returned and continued till he came to hospital. Pain was complained of in the abdomen, but not increased on pressure. There was, however, rigidity of the abdominal walls, and nausea and vomiting. The countenance was anxious. Temperature, 103½°. Quinine was given with morphia. The progress of the case was unsatisfactory. It was at first supposed that the patient suffered from malaria, with peritonitis as a complication, but this opinion was given up. Death occurred in seventeen days from exhaustion. There was no tympanitis, no chill, or profuse sweating. At the time of death no diagnosis had been arrived at.

Autopsy.—An area of the stomach, measuring two and a half by two inches, was found to present reddened and thickened prominences. Small abscesses were found in the submucous cellular tissue. The stomach was adherent to the liver. The intestines were bound together. The liver contained multiple abscesses, and along the portal canal there was pus. None however was found in the veins. Abscesses were distributed through the mesentery. Dr. Loomis said the case was very obscure. He had never before seen multiple abscess of the liver without chills. The patient never had dysentery.

Extra-capsular Fracture.—Dr. Stimson exhibited a specimen of extra-capsular fracture, occurring in a woman aged eighty-two. The fracture was caused by stumbling. Dr. Stimson said it was interesting to compare it with a case he previously presented, in which intra-capsular fracture resulted from a severe injury.

Dr. Post said that extra-capsular fractures occurred most frequently in old people, whereas intra-capsular ones were found exclusively in the old.

Periosteal Sarcoma of Thigh.—Dr. Briddon presented a periosteal sarcoma of the thigh. The disease began with fracture of the thigh, and at the end of ten weeks the condition of the lower part of the femur led to the opinion that there was synovitis of the knee. The joint was aspirated, but no fluid obtained. Subsequently an incision four inches long was made on either side of the patella, when the true condition was discovered. Amputation of the thigh was performed on May 4th. A microscopical examination showed it to be a periosteal sarcoma, and one which would probably return.

Resection of the Hip.—Photographs were shown of a boy aged fourteen, upon whom resection of the hip had been performed. When twenty months old he was injured; since that time the disease continued. Six years ago an abscess formed behind the hip. The deformity was of the usual variety seen in disease of the hip, the knee being bent at an angle of ninety degrees. The usual operation was performed. One week subsequently the patient was doing well. The shortening of the affected extremity measured three inches.

Absence of Right Ventricle of Heart; Stenosis of Pulmonary Artery.—Dr. Heineman presented the heart of an infant, aged six months, who presented the rare abnormality of absence of right ventricle of heart with stenosis of pulmonary artery.

Blood was conveyed to the lungs through the ductus arteriosus. The only symptoms noticeable were sudden attacks of dyspnœa.

Apoplexy; Miliary Aneurism.—Dr. AMIDON presented a specimen, showing distinctly the occurrence of miliary aneurism. It was obtained from the brain of a patient who died from apoplexy. The specimen had the appearance of small tubercles connected together by means of a fine network. This network was the capillaries of the brain. The specimen was obtained by washing away the brain-matter.

Abscess of Kidney.—Dr. R. F. WEIR related the history of a patient who had an abscess of the kidney. He was run over by an ice-cart, and for two years did not complain of any trouble. He entered Roosevelt Hospital, presenting a tumor in the region of the kidney. This was thought to be perinephritis. Aspiration was performed, but without result. It was repeated with a large needle, when pus was obtained. An incision was then made to allow of the free discharge of pus. Death took place two months after the operation. At the autopsy local peritonitis was discovered. An abscess was found to have involved the kidney. At times pus was found in the urine, but not continually. Dr. Weir thought the case was one in which extirpation of the kidney might have been performed with benefit.

Stated Meeting, June 26, 1878.

Dr. E. C. SEGUIN in the Chair.

Ligature of Lingual Artery near its Origin; Removal of Epithelioma of Tongue.—Dr. GEO. F. SHRADY presented an epitheliomatous tumor of the tongue and floor of the mouth, which he had removed the previous afternoon at the Presbyterian Hospital. The case was of particular interest from the circumstances attending the operation. The patient was a married woman, aged thirty-two, the mother of four children. She noticed about eight months ago an ulceration on the left side of the tongue, about its middle. The ulceration gradually advanced, and after two months involved nearly the whole side of that organ, and subsequently the floor of the mouth. When she was examined in hospital the left side of the tongue presented an indurated and sloughy ulceration, extending from the top of the tongue backward to the reflection of the anterior faucial pillar. The entire inner surface of the gum on the left side was covered with a fungous growth, which overlapped the alveolar margin, and extended across the floor of the mouth, under the base of the tongue, as far forward as the frenum, inward as the median line, and backward as the limits of the disease of the tongue. The patient suffered much from neuralgia of the ear and face of the affected side. A consultation of the surgical staff was held, and it was decided that the disease should be removed. The operation and its possible results were explained to the patient. She gladly accepted it, even if it should prove a temporary relief from the intense suffering. Dr. Shrady determined to remove the disease through the month, and, as a preliminary step, to tie the lingual artery of that side near its origin behind the digastric triangle, where the vessel passed under the border of the hyoglossus muscle and above the extremity of the greater cornua of the hyoid. In doing this the dissection was carried down through the skin and fascia, exposing the sheaths of the external carotid and facial arteries and internal jugular vein, also the superior laryngeal and hypoglossal nerves. The lingual was found, after a careful dissection, and ligated. The operation lasted twenty minutes. The finger was then introduced into the mouth, and the growth separated from the inner side of the jaw. This was accomplished with but little assistance from the scissors. After the mass was separated from the floor of the mouth, as far as the median line, the tongue was secured by three strong ligatures, one passing through the tip to the right of the median line, and one an inch on either side. The tongue was then spread out and split longitudinally to its base. The incision was carried outward behind the disease, and the whole mass removed. The operation on the side of the tongue was nearly bloodless. There was, however, some bleeding from the floor of the mouth.

Dr. Shrady said that he had seen the patient a few hours before the meeting of the Society, and twenty-four hours after the operation. He found her quite comfortable, but suffering, as might be supposed, from difficulty in swallowing her saliva. The patient had been nourished by enemata since residing in the hospital, and it was considered wise to continue that method of alimentation, although a small quantity of milk could be swallowed at short intervals.

Dr. Post said Dr. Shrady's case afforded a striking illustration of the absence of anastomosis of the vessels on either side of the tongue, as proved by the fact that ligature of the lingual on the affected side made the section of the tongue bloodless. He referred to a specimen in the museum of the university, in which the injection of one side of the tongue stopped at the median line, except along the line of the mucous membrane.

Dr. H. B. Sands said removal of epithelioma of the tongue was not only very difficult in practice, but unpromising in results. There was, perhaps, no form of cancer more malignant, and none more prone to kill quickly after operation. In regard to the explanation of such untoward experience, he was inclined to think that the difficulties in complete removal offered the most satisfactory solution. In operating it was difficult to thoroughly expose all of the diseased tissues, due to the fact that from the small size of the mouth illumination was difficult.

Dr. Sands said that he had no experience in ligating the lingual artery as a preliminary step of the operation. He had only seen the vessel tied once in the place of election, and on that occasion the difficulties attending it were very great, and he thought at the time that the ligature of the lingual was not only a formidable operation, but much more difficult than he would suppose from dissections on the subject. Billroth attempted to tie the same vessel, as a preliminary step to the operation for excision of the tongue. During the operation the hæmorrhage was very copious. Shortly afterward the patient died, and it was found that the lingual vein had been tied in mistake for the lingual artery. Dr. Sands was in favor of dividing the jaw in the median line, as the most thorough way of reaching the diseased tissues. The objection to such an operation was that there might be non-union of the bones. Some months previously a patient, on his way to Europe, consulted him in regard to cancer of the tongue. Dr. Sands suggested that the patient consult a distinguished surgeon of Paris. He did so. The surgeon concurred in the diagnosis and proposed removal. This was done with an *écraseur* and Paquelin cautery. The wound never healed. The patient returned to America in a month, and Dr. Sands again examined him. He found that an ulcerated surface extended along the line of section. Probably the disease reappeared, but the greater probability was that the whole of cancer was not removed by the operation.

Dr. Briddon thought a good deal might be said on the question of ligature of the lingual. He had seen a distinguished surgeon of the city fail to secure it. He had also seen it tied successfully. The operation done by Dr. Shrady was stripped of many dangers, for the reason that it was based on an accurate knowledge of the parts. The surgeon not familiar with the anatomy of the region should not attempt it. He did not understand how the mistake of tying the vein occurred. In Dr. Shrady's case the artery could be seen pulsating distinctly. The ligature was applied with relative ease, although the locality was considered to be fraught with danger. There could be but little doubt that the proper place to tie was in the locality selected by Dr. Shrady, for, when the operation was performed, as was usually the case, in the digastric triangle, there was liability to hæmorrhage from the dorsal artery supplied to the root of the tongue.

Dr. Shrady said that in deciding upon the operation he performed he was guided by several circumstances. He promised the patient that he would not mutilate her face unless absolutely necessary. He thought also that he could reach the diseased tissues better with the knife and scissors than with the *écraseur.* The mouth of the patient was shallow, and the objections did not obtain which might have under other circumstances. The operation was much simplified by the absence of hæmorrhage, due to the ligature of the lingual at an early part of its course. He thought when the lingual was tied, that removal of the cancer through the mouth was the preferable operation, as the dissection could be conducted without risk to the patient. He thought in his case that all the diseased portions were removed, and was inclined to the opinion that a better result would be got than was at first anticipated.

Dr. W. M. Carpenter thought the case illustrated the benefit of an early operation. He had seen it in consultation with Dr. Lyons during March, 1878. At that time there was only an ulceration surrounding one tooth. This was one inch in length, by half an inch in breadth. An early operation was declined, and medical treatment had to be resorted to. Fowler's solution was given for two weeks with marked benefit, the pain was relieved and the angry character of the sore was modified. A relapse occurred, and arsenic was applied locally. It had a good effect, but of a transient character; citric acid for a time proved valuable, but gradually the disease extended and was in no respect influenced by medical remedies. The patient suffered intense pain, and her general condition was very unfortunate.

Dr. John H. Ripley had tried arsenic in cancer, but without benefit.

Dr. Briddon had never received any benefit from arsenic. He asked whether excessive mutilation of the face was justifiable in such a disease as cancer of the tongue.

Dr. Sands thought that in such a painful disease division of the lower jaw was indicated, if by so doing all of the disease could be removed. If such could not be done, he should recommend section of the gustatory nerve. He had performed the operation in three cases. In two of them the pain was much lessened, and in the third it did not return for two months, when the patient died.

Dr. Post did not consider the section of the lower jaw as a formidable operation, and did not apprehend much danger from non-union if the parts were well wired together. It greatly facilitated removal of cancer involving the floor of the mouth, and lessened the danger of hæmorrhage, for the reason that, if section was not made, it was difficult to tie vessels in the back part of the mouth. He had made a section of the jaw on an old lady from Long Island, and was pleased with the result.

Dr. Erskine Mason thought there was danger from secondary hæmorrhage after the use of the galvano-cautery. In one case at Roosevelt Hospital hæmorrhage recurred the following day to such an extent as to require the use of a ligature in the wound, and subsequently in the triangle.

Dr. Shrady thought splitting the jaw lessened the chances of the patient. He did not think it was a necessary operation to avoid hæmorrhage, as the history of the case proved.

The division of the gustatory nerve was not indicated, as the diseased portion of the nerve was taken out with the part of the tongue removed.

Fibro-plastic Tumor of Gastrocnemius.—Dr. Post presented a tumor of the gastrocnemius, which he had removed at the Presbyterian Hospital from a boy aged eighteen. The patient could not straighten his leg. The gastrocnemius was bisected, and the belly of it removed. The soleus was not injured. A drainage-tube was inserted, and the wound healed by first intention. After the operation the boy was enabled to extend his leg.

Ligature of Axillary Vein.—Dr. Post reported that the case of tumor of the breast presented at the last meeting died in a few days after the operation. A lateral ligature was placed upon the axillary vein to check the hæmorrhage following puncture of that vessel. He presented the specimen of axillary artery and vein.

Keloid Tumors.—Dr. Post also presented two specimens of keloid tumor of the lobe of the ear due to the use of earrings. They had recurred several times.

Congenital Tumor of Neck; Removal.—Dr. Henry B. Sands reported a case of congenital tumor of the neck, which he had successfully removed from a girl aged thirteen. The history of the case was as follows: At birth a large-sized tumor was noticed beneath the jaw; this increased gradually, but caused no serious inconvenience till two and a half years ago, when it became painful. An examination showed it to be inflamed, and on opening it a considerable amount of pus was discharged.

Subsequently it opened spontaneously, and continued to remain in a suppurating condition till the time of removal. On admission to hospital, a large tumor was found beneath the chin, extending as far down as the sternum. Transversely it was bounded on the left by the posterior border of the sterno-mastoid muscle, and on the right by the anterior border of the corresponding muscle on that side. The skin was attached to the muscle at only two points, where sinuses existed.

The operation for removal consisted in making a vertical incision, four inches in length, on the posterior border of the tumor. This incision was carried down through the skin and superficial fascia, till the capsule of the tumor was reached. The posterior flap was then dissected up, and the attachments separated by the scissors—the tumor being carried forward by hooks. The internal jugular vein and carotid artery were exposed, and the dissection carried as far as the larynx and trachea. The operation was completed by making an horizontal incision across the tumor as far as the first, and forming with it a T-shaped incision. The flaps were dissected up and the whole growth removed. The operation lasted forty-two minutes, and toward its close the patient showed signs of exhaustion, the pulse and respiration becoming almost imperceptible. Esmarch's bandage was applied to the limbs. Hypodermic injections of whiskey were given, and oxygen gas administered to the patient. Reaction slowly came on, and eventually the patient made a good recovery. During the operation there was considerable hæmorrhage from the oozing of blood. After the operation a drainage-tube was inserted, and retained for five days, when it was removed, together with the sutures. Primary union took place through the greater part of the incision, which was in part lost by formation of abscesses. Eighteen days after the operation the patient was able to sit up in bed, though very weak.

The tumor was examined by Dr. DELAFIELD, who found it to be made up of several cysts, containing either serous fluid, gelatinous or atheromatous matter. In a few places were tubules lined with cylindrical epithelium, and resembling follicles of the thyroid body.

Microscopical Study of Necrosis.—Dr. C. HEITZMANN explained, by means of diagrams, the pathology of necrosis of bone as studied in his laboratory by Dr. Bodecker, who found, in healthy bone, that the lacunæ contain a protoplasmic body which ramified into a net-like arrangement.

That the basis substance is pierced by many coarse and fine canaliculi, communicating with the lacunæ, and with each other.

That the protoplasmic bodies which do not completely fill the lacunæ send offshoots into the canaliculi.

That in necrotic bone traces of former osteitis are visible, and the Haversian canals do not contain blood-vessels, but instead micrococci.

That in necrotic bone most of the lacunæ contain no protoplasm, but either a coarsely granular or structureless mass, which originally was living matter and coagulated albumen.

Bibliographical and Literary Notes.

ART. I.—*Nervous Diseases: Their Description and Treatment.* By ALLAN McLANE HAMILTON, M. D., etc. With Fifty-three Illustrations. Philadelphia: Henry C. Lea, 1878. Pp. 512, 8vo.

ON first opening Dr. Hamilton's book we were under the impression that the publisher had, by mistake, sent us a treatise on diseases of the nervous system by another author, so greatly do the size of the page, the tint of the paper, the type used as headings for the sections, etc., resemble the same features in Dr. Hammond's work. And this impression was not lessened when, on cursorily turning over the pages of the volume before us, we came across many passages which it seemed to us we had read before. As instances of the point to which we refer, we adduce the following extracts, and, for purposes of comparison, cite also corresponding sentences from Dr. Hammond's treatise:

Dr. Hammond.	Dr. Hamilton.
"During the remainder of the night he tosses restlessly from side to side of the bed" (p. 34).	"At night he finds it impossible to sleep, and tosses to and fro" (p. 70).
"He consequently rises unrefreshed, feverish, and ill prepared for either mental or physical exertion" (p. 34).	"He rises in the morning unrefreshed and uncomfortable, complaining of muscular weakness" (p. 70).
"Mental labor of all kinds is not only difficult, but is irksome in the extreme" (p. 34).	"With the patient, mental exertion is irksome, and study or concentration is disagreeable or impossible" (p. 70).
"The emotional system participates in the general mental disturbance, and the passions are thus easily roused into activity by slight existing causes. Trifling circumstances produce great annoyance, and the little every-day troubles of life appear of vast importance" (p. 34).	"The emotions are generally disturbed and altered. Irritability, nervous excitement, and morbid exhilaration of spirits may make his conduct strange and unnatural to those about him; while slight things seem to disturb and harass him" (p. 70).
"Sometimes there are bright flashes of light from free excitation of the retinæ, and at others dark spots—*muscæ volitantes*—render the vision *indistinct*" (p. 35).	"He may complain of *muscæ volitantes*, and inform us that there are bright specks or motes which flit across the vision" (p. 70).

These are by no means all the examples of an almost complete identity, not only of ideas but of language, which exists between Drs. Hamilton and Hammond on the subject of cerebral hyperæmia. One need only read the whole of pages 34 and 35 and part of 36 in Dr. Hammond's book, and pages 70 and 71 in Dr. Hamilton's volume, to find this out for himself.

Now, as the association of the symptoms in question with cerebral hyperæmia is altogether a view which Dr. Hammond was the first, so far as we know, to enunciate, and as the description of what he calls the prodromatic stage of cerebral congestion or cerebral hyperæmia is entirely his own, it would seem only right and proper that Dr. Hamilton should at least have acknowledged his indebtedness.

In describing the symptoms of cerebral anæmia, Dr. Hamilton follows closely the account given by Dr. Hammond, even to the acceptance of the view that drowsiness is a prominent feature during the day, when the patient is in the erect or sitting posture, while as soon as night comes, and the recumbent position is assumed, insomnia results. This is the more remarkable because, two or three years ago, in a review of Dr. Hammond's work published in a medical journal Dr. Hamilton was then conducting, and written by one of the "friends" to whom he expresses his obligations, this part of the symptomatology was characterized by the expressive but perhaps inelegant word "bosh."

Leaving for the present further criticism on the points of similarity between the two books, we feel bound to notice certain marked errors of statement made by Dr. Hamilton. For instance:

On page 227, when speaking of spinal irritation, he says, "The brothers Griffin were the first to describe this interesting affection." So far is this from being the case, that about a dozen writers, among them Dr. Isaac Parish, of Philadelphia, accurately described the affection before the Griffins, and even the name "spinal irritation" was used before the publication of their monograph.

On page 285 he says, "To the ataxic individual a four-pound weight seems no heavier than one of two pounds would were he in normal condition, and if his muscular movements were properly coördinated." This is a most inaccurate statement. The symptom in question is not present in one case out of fifty—never, in fact, unless the seat of the spinal disease is above the median plexus, and this is a rare situation for it.

On page 287, in speaking of the treatment of locomotor ataxia, Dr. Hamilton says, "From the very nature of the disease, the treatment must be empirical, and no one remedy seems to have done much good." This positive statement is immediately followed by the assertions that one case of his own was "greatly benefited" by nitrate of silver and nux vomica; that he has tried the phosphate of silver with "great success;" that the sulphur bath "seems to possess in some cases powers which are almost marvelous;" that "faradization of the muscles of the legs and thighs seems to comfort the patient more than anything else;" that the actual cautery "not only diminished the pains, but really improved locomotion;" and that, notwithstanding all the efficacy of these remedies, "nutritious food, cod-liver oil, and moderate stimulation are perhaps more important than medication."

The prognosis of amyotrophic lateral spinal sclerosis is dismissed with the single word "Hopeless." This is immediately followed by the statement that "Duchenne claims to have cured several cases by means of faradization, massage, and other forms of local treatment." We should like to know when Duchenne made any such claim, and where details of the cases are to be found. The fact is he did nothing of the kind; and, if he did, why should Dr. Hamilton pronounce the prognosis "hopeless?" Is his authority better than that of the great French master?

Primary symmetrical lateral sclerosis has, according to Dr. Hamilton, neither "causes" nor "prognosis." Türck's name is not mentioned in connection with the disease, though he was the first to describe it, and less than a page and a half is taken up in the detail of what Dr. Hamilton knows of this very interesting and important affection.

A great feature is made of the fact that a chapter is devoted to the consideration of cerebro-spinal meningitis. This chapter consists of less than three pages and a half, and the valuable points in its clinical history given by Clymer are dismissed with the remark that he "and Jones have written exhaustively on the subject." Stillé's treatise is not even referred to.

We might go on and almost make a volume of Dr. Hamilton's sins of commission and omission, but space would not permit. One other point should, however, we think, be mentioned. Dr. Hamilton's book is overloaded with references, but a little study soon shows us that very many, perhaps the majority, are taken second-handed from other writers. As an instance of this, we may cite the reference made on page 342 to Cheadle's case of glosso-labio laryngeal paralysis, as follows: "Glosso-Labio Laryngeal Paralysis, 'St. George's Hospital Reports,' vol. v., 1871, page 123." Turning now to Hammond's work, we find that he has also referred to Cheadle's case as "Glosso-Labio Laryngeal Paralysis 'St. George's Hospital Reports', vol. v., 1871, page 123." To show that Dr. Hamilton has never consulted Cheadle's paper, but took his reference without credit from Dr. Hammond, we have only to turn to the original, when we find that the title of the paper is "Labio-Glosso Laryngeal Paralysis." This is something like the detection of appropriators of other people's property by the device of putting off marked money on them. Dr. Hamilton took the reference, mistake and all.

Again, we find that on page 377 Dr. Hamilton makes a reference to "Schenck," as follows: "Obs. l. 3, p. 306." Now, there were three Schencks who were medical authors—John, John Andrew, and John George. The abbreviations "Obs. l. 3, page 306" give no indication as to which one of the books of any one of these Schencks is referred to, and the whole reference is obviously taken at second or third hand. In an old English book before us there is exactly the same reference to the same case, and it has been recently quoted in this country.

Dr. Hammond, in treating of the morbid anatomy of spinal pachymeningitis, referred to the thesis of Meyer as follows: "Des Pachymeningitidæ cerebro-spinali interna. Bonnæ, 1861." Here, again, was an error; for, of course, it should have been "De" and not "Des." But Dr. Hamilton, apparently failing to see that it is Latin, not French, copies the reference, error and all, besides making use without acknowledgment of Dr. Hammond's language in various parts of his account of the disease.

But, before concluding our notice of Dr. Hamilton's publication, we feel it our duty to call his attention to certain grave grammatical errors, as well as misstatements of facts. To point out a tithe even of these would be a wearisome task. A few, therefore, must suffice. The italics are ours.

"Until a few months ago the old form of cautery was used. *These* are of iron," etc. (page 32).

"The pulse during the first two or three days varies from 60° to 70°" (page 36). What is meant by this statement we are unable to divine.

"In cerebral softening there is decided local pain, very intense, and *never* absent" (page 80). A more erroneous statement was never put into a medical treatise.

"Abstinence from alcohol in some cases, attention to the bowels, and the precaution of keeping the head cool and the neck unconfined, are the first observances to be followed *by the physician* and patient" (page 80). Why the physician should follow these "observances" we are not informed. This is taking one's own medicines with a vengeance, and inculcates a self-sacrificing spirit on the part of the profession which, considering what it already does in this way, is, we think, imposing unnecessary burdens.

"Muscæ volitantes dependent upon retinal extravasation" (page 84). We always thought there was another cause for these intra-ocular spectra, but we "live and learn."

"An interesting feature of this case was exaggerated emotional disturbance, which is usually quite marked in right hemiplegia" (page 88). This is certainly an original observation, and we are glad to give the author the credit of discovering that emotional disturbance is especially to be noted with *right* hemiplegia.

"It will generally be found necessary to draw the patient's urine for a few days, for the bladder loses its expulsive force, and if this procedure be not resorted to, there may be *incontinence*" (page 90). This is also a new point in pathology. We once saw death result from the failure to draw off the urine in a case of paralysis of the bladder, but it was not from incontinence.

Apart from these and similar errors, and the peculiarities we have pointed out, we do not find much in the work either to praise or to condemn. It contains little or nothing that cannot be found in other books in the same subject.

Art. II.—*Sore Throat: Its Nature, Varieties, and Treatment. Including the Connection between Affections of the Throat and other Diseases.* By Prosser James, Physician to the Hospital for Diseases of the Throat, etc. Third Edition, illustrated with Colored Plates. London: Churchill, 1878. Pp. 288.

This book, which is modestly called by its author a "little work," but which, in its present form, is in reality a very complete and valuable essay upon the subject of which it treats, is the result of considerable additions to the earlier editions, which have been so far rewritten as to coincide with the great progress that has been made within the past few years in laryngoscopy, and in our knowledge concerning the diagnosis and treatment of diseases of the upper air-passages, and to embody, moreover, the further and valuable experience acquired by their author during the time that has elapsed since the first appearance of his work—an experience derived, he tells us, by active service and favorable opportunity afforded for observation as physician to several special institutions for diseases of the throat and chest.

With ample preparation, then, for the task which he has undertaken, it is a matter of no surprise that he offers to the medical profession a practical and useful work—one which, as a manual for ready reference, will be found of value and interest, not only to the general practitioner, but to the specialist, and particularly to the student.

We like the general plan of the book. Opening with a short but succinct description of the anatomy of the throat—a term which is used collectively—the anatomy and physiology of the mucous membrane are carefully considered, and afford to the reader who has gone over the ground an advantageous standpoint from which he may intelligently glance at the general pathological conditions comprised in the phenomena of congestion and inflammation, with their sequelæ, as exemplified in the various forms of sore throat, both pharyngeal and laryngeal, that are in turn described in more or less detail as follows: Catarrhal, inflamed, relaxed, follicular, phlegmonous, gangrenous, exudative, fungous, specific, including tubercle, cancer, and syphilis, exanthematous, the account of which is of special interest, involving many questions as to the relation existing between skin-diseases and sore throat; and, finally, non-inflammatory affections, under which heads are included hyperæmia, anæmia, degeneration, hyperæsthesia, paresis, spasm, wounds, etc.: surely a very complete category.

Having been told of the nature and varieties of sore throat, the reader is instructed, in a very practical chapter, how a diagnosis may be made; and, as this involves the use of both the laryngoscope and rhinoscope, a concise exposition of the art is given, which can be read with interest by those already practised in it, and studied with profit by the beginner.

As regards the treatment of the affections in question, the author tells us nothing new, and deals with the subject in but a general way. This is to be regretted, and we can but express the wish that he had seen fit to embody in this chapter his personal views and the results of his practical experience. There is certainly nothing very suggestive to the student, for instance, in the short paragraph which treats of astringents. "Zinc, iron, copper sulphates, and other salts, have in like manner been alternately employed by me in several states of the membranes. Solutions of various strength may be applied by means of cotton-wool, sponges, probangs, or camel-hair brushes." And we are afraid that he will turn from it with a feeling of despair, if he have but little knowledge of the subject, and a case which he desires to treat by these means. The directions in regard to the treatment of the nares and pharyngeal space are open to still greater objections—they are not up to the times.

Following the author in his plan, we now pass to the perusal of some excellent chapters, in which he considers the organs of the throat individually, and the special affections of the soft palate and uvula, the tonsils (an interesting article, including the question which he raises concerning the sympathy existing between the tonsils and the ovaries), the pharynx, the naso-pharynx, and, finally, the larynx, receive in turn a careful handling: this part of the work alone constituting an essentially practical and well-written treatise upon the subject of throat disease, which, though open to some criticism, can in the main be fully indorsed. Finally, with a few observations on external sore throat, ends a book that may, without hesitation, be commended, and which will, we are sure, find a welcome place in laryngoscopic literature. It is decidedly the best of Dr. James's literary efforts.

Art. III.—*Congenital Occlusion and Dilatation of Lymph Channels.* By Samuel C. Busey, M. D., Professor of the Theory and Practice of Medicine, Medical Department of the University of Georgetown, etc. New York: Wm. Wood & Co., 1878.

The author of this volume deserves much credit for his industry in collecting a large number of cases of an unusual disease. He has given us the records (with illustrations) of eighty-five cases of enlargement of the extremities, tumors of the trunk, etc., which are supposed to be due to obstruction, or occlusion, of the lymphatic vessels, or to congenital hypertrophy of these structures. These have been gathered from varied sources, and the compilation must have been made at the expense of much patient labor. Almost the same amount of trouble must be undertaken by the reader, we regret to say, if he wishes to inform himself on this subject; for there is no attempt to classify the cases, no analysis or summary of prominent clinical features, and no generalization as to diagnosis and prognosis. In regard to the results of treatment the author has been more generous, and has given us a fair *résumé* of what has been done. While regretting his neglect to put in a more interesting form the large amount of information which he has collected, we must praise him for his painstaking efforts, and commend his book to the attention of our readers.

Art. IV.—*Clinical Cases, Medical and Surgical.* By the late John O. Stone, A. M., M. D., formerly Surgeon to the Bellevue Hospital, etc. New York: G. P. Putnam's Sons, 1878.

The greater number of the cases recorded in this volume are surgical, and they are of sufficient interest to warrant reading. Thirty pages are devoted to "Amputations and Compound Fractures, with Statistics," an article which was published in the *New York Journal of Medicine*, November, 1849, and which contains many valuable facts and deductions. Among the medical cases the following may be cited as worthy of the reader's attention: "Acute Inflammation of the Brain, recovery;" "Cerebro-spinal Fever" (three cases); "Puerperal Fever, recovery;" "Whooping-Cough immediately after Birth, death;" and "Glossitis." With the exception of some remarks on suppuration in the knee-joint, the cases are unaccompanied by comments—a defect which the writer, had he lived to preface this volume for publication, would undoubtedly have remedied most acceptably.

Books and Pamphlets Recieved.—Medical Education: Extracts from Lectures delivered before the Johns Hopkins University, Baltimore, 1877–'78. By John S. Billings, M. D., Surgeon United States Army.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von Ziemssen, Vol. XIII. Diseases of the Spinal Cord and Medulla Oblongata. By Prof. Wilhelm Heinrich Erb, of Heidelberg, Baden. Translated by E. G. Geoghegan, M. D., of London; E. W. Schauffler, M. D., of Kansas City; D. T. Lincoln, M. D., of Boston; and J. A. McCreery, M. D., of New York.

Vol. XVII. General Anomalies of Nutrition and Poisons. By Prof. H. Immermann, of Basel; Prof. R. Boehm, of Dorpat; Prof. B. Naunyn, of Koenigsberg; and Prof. H. Von Boeck, of Munich. Translated by W. B. Woodman, M. D., and J. B. Yeo, M. D., of London; E. S. Wood, M. D., of Boston; C. Emerson, of Concord; P. Farley, of Rochester; and A. B. Ball, M. D., and E. Waller, Ph. D., of New York. Albert H. Buck, M. D., Editor of American Edition. New York: William Wood & Company, 1878.

Fownes's Manual of Chemistry, Theoretical and Practical. Revised and corrected by Henry Watts, B. A., F. R. S., Editor of the Journal of the Chemical Society, author of "A Dictionary of Chemistry," etc. A New American from the Twelfth English Edition. Edited by Robert Bridges, M. D., Professor of Chemistry in the Philadelphia College of Pharmacy. With 177 Illustrations. Philadelphia: Henry C. Lea, 1878.

Medicine, the Present and Future: An Address delivered to the Graduates of Evansville Medical College, February 27, 1878. By J. W. Compton, M. D., Professor of Materia Medica and Therapeutics in Evansville Medical College. (Reprinted from the *St. Louis Medical and Surgical Journal*, June, 1878.)

The Application of Pressure in Diseases of the Uterus. By V. H. Taliaferro, M. D., Atlanta, Professor of Obstetrics and Diseases of Women and Children in the Atlanta Medical College. (Reprint from the *Transactions of the Medical Association of Georgia.*)

Address delivered before the American Medical Association, at its Twenty-ninth Annual Session, held at Buffalo, N. Y., June 4th to 7th, 1878. By T. G. Richardson, M. D., of New Orleans, President of the Association.

Amputations and Excisions of the Cervix Uteri: their Indications and Methods. By J. Byrne, M. D., M. R. C. S. E., Surgeon-in-chief of St. Mary's Hospital for Diseases of Women, Brooklyn. (Reprint from Vol. II. *Gynecological Transactions*, 1878.)

Contributions to the Physiology and Pathology of the Breast and its Lymphatic Glands. By Charles Creighton, M. B., Demonstrator of Anatomy in the University of Cambridge. With Illustrations. London: Macmillan & Co., 1878.

Litholapaxy: or Rapid Lithotrity, with Evacuation. By Henry J. Bigelow, M. D., Professor of Surgery in Harvard University; Surgeon of the Massachusetts General Hospital. Boston: A. Williams & Co. New York: Wm. Wood & Co., 1878.

Antagonism of Alcohol and Diphtheria. By E. N. Chapman, A. M., M. D., formerly Professor of Materia Medica and Therapeutics, and Clinical Midwifery in Long Island College Hospital. Brooklyn: Union-Argus Steam-Printing Establishment, 1878.

How to take Care of Our Eyes, with Advice to Parents and Teachers in regard to the Management of the Eyes of Children. By Henry C. Angell, M. D., Professor of Ophthalmology in Boston University. Boston: Roberts Brothers, 1878.

Transactions of the American Gynecological Society, Vol. II., for the Year 1877. Boston: Houghton, Osgood & Co. Cambridge: The Riverside Press, 1878. Pp. 697.

The Atlantic Islands as Resorts of Health and Pleasure. By S. G. W. Benjamin, Author of "Contemporary Art in Europe," etc. Illustrated. New York: Harper Brothers, 1878. Pp. 274.

Address delivered before the Indiana State Medical Society, May 21, 1878, on the Economy and Necessity of a State Board of Health. By the President, L. D. Waterman, M. D.

Braithwaite's Retrospect of Medicine. General Index, Vols. LXXI.–LXXVI. Vol. LXXVII., January to June, 1878. London: Simpkin, Marshall & Co.

University of the City of New York; Medical Department; Annual Announcement of Lectures and Catalogue. Session 1878–'79.

Transactions of the Iowa State Medical Society, for the Years 1877–'78. Published by the Society. Vol. III.

The Present Status of the Pathology of Consumption and Tuberculosis. By J. Hilgard Tyndale, M. D., of New York City.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. EDWARD FRANKEL, W. T. BULL AND GEORGE R. CUTTER.

SURGERY.

Disadvantages of the Thymol Dressing.—In the autumn of 1875, thymol was employed in the clinic of Prof. Bardeleben, in Berlin. Operations and dressings were done under a spray of a solution of 1 part thymol to 1,000 parts water, and compresses of gauze, after lying three to six hours in an eight per cent. solution of carbolic acid, were wet with a thymol solution (1 to 1,000), and applied to the wounds. The course of the healing of wounds was aseptic in character, without irritation of the skin or the wound-surface, and the process more active than under the carbolized dressings. After a few weeks, when about forty patients had been treated in this way, it was thought desirable to return to the carbolic-acid dressings, for the following reasons: 1. The strong, sweet odor was disagreeable to patients, most of whom, from the second week, complained of dull and even severe headache. This was attributed to the thymol, in the absence of other causes, as the nurses were likewise affected, and the unpleasant sensations disappeared when the carbolic acid was used. 2. The odor of the thymol was very attractive to flies, which congregated in such numbers as to make mere passing through the ward unpleasant. The dressings were literally covered with them, and, on the second day of its use, it was necessary to place nettings about the patients.—*Ueber die practische Verwerthung des Thymol:* Lewin, *Deutsche med. Woch.*, 15, 1878.
W. T. B.

Expulsion of Necrosed Rib from the Rectum.—Heck relates (*Deutsche militärarzt. Zeitschrift*, Heft 8 and 9, 1877) the case of a soldier who had a rib fractured by a shot in the Franco-German war. Seven years later he passed a fragment of bone, three centimetres long, two centimetres broad, and in maximum three-quarters of a centimetre thick, by the rectum. The external form and texture had no resemblance to a necrosed fragment of rib; on the contrary, on palpation of the pelvis near the place of exit of the ball, a superficial defect was recognized, which corresponded nearly to the piece of bone in question. The origin of this necrosis is explained by Heck by a division of the ball when it struck the rib. The portion of ball supposed to be still in the pelvis could not, however, be detected by palpation.—*Centralblatt f. Chirurgie*, No. 39, 1877. G. R. C.

Abnormal Sweating of Hands following Suppression of that of the Feet.—Hildebrandt reports (*Deutsche med. Wochenschrift*, No. 20) the case of a soldier who dusted salicylic acid mingled with starch and talc on his feet seven times during three weeks to suppress the abnormal perspiration. The latter ceased temporarily, but reoccurred during marching. The powder was reapplied a couple of times, after which the palms of the hands perspired freely, the water running in streams from them, while the feet scarcely perspired even during prolonged marching in very hot weather. The remaining portions of the body were at the same time quite dry. Hildebrandt also observed the same phenomena in another soldier who used this powder, though the perspiration of the feet did not cease entirely.—*Centralblatt f. Chirurgie*, No. 43, 1877. G. R. C.

Thermo-cautery in Thoracentesis.—At the *Société de Chirurgie*, July 4, 1877, M. Tillaux reviewed an operation for the relief of empyema, performed by M. Feréol by means of the thermo-cautery on a tuberculous subject attacked with purulent pleurisy. The operation was slow, lasting more than fifteen minutes, and was very painful. The pleura was punctured with the bistoury; there was a little hæmorrhage, which was easily arrested. On the third day the wound had so enlarged that the drainage-tubes were not retained. The periosteum of the lower rib became detached, and the intercostal spaces gaped. On the eighth day severe hæmorrhage occurred at the posterior angle of the wound, but was arrested. The patient died from the tuberculosis. Feréol concludes, from this experience, that the thermo-cautery should not be employed in the operation for empyema. It might, perhaps, be employed in gangrenous pleurisies, etc., when absorption of putrid matters was to be feared. Here the use of the thermo-cautery guards against absorption, at least for several days. Tillaux believes with Feréol that the usual operation was the best and easiest of performance; there was no hæmorrhage, and with the bistoury the operation was much quicker and less painfully performed. Verneuil related three cases in support of the above opinions. He had sought to prevent the rapid absorption of putrid matters by employing either the galvano- or thermo-cautery. The first case was a spare man, with very thin thoracic walls; the operation lasted five minutes. The second patient was suffering with œdema, and the serosity extinguished the instrument every minute. The third patient was one who had retained a thoracic fistula after the cutting opening. Verneuil sought to enlarge the opening with the thermo-cautery, but the operation was laborious, very painful, and lasted from seven to eight minutes. The bistoury did not have these disadvantages, the whole operation being completed in two minutes at most.—*Gaz. Méd.*, 29, 1877. E. F.

THEORY AND PRACTICE.

Exanthem consecutive to the Administration of Sulphate of Quinine.—Dr. Ricklin (*Gazette Médicale*, 48, 1877) refers to a case published in the *Berliner klin. Wochenschrift*, 22 and 23, 1877, in which the use of sulphate of quinine was followed by a peculiar train of symptoms. The patient was a young woman twenty-eight years old, affected for several years with tuberculous bronchitis. November 7, 1876, the patient at eight P. M. had taken a dose of sulphate of quinine. At ten o'clock she experienced a chill, followed by intense præcordial anxiety with nausea and vomiting of mucus. At midnight the patient complained of violent cephalalgia, accompanied by repeated chills; furthermore, a sense of burning, which, beginning at the head, invaded the entire surface of the body. On the following morning the fever was intense, and the presence of an exanthem was discovered, with sensation of burning and painful itching. There was also great difficulty of deglutition, with sharp pain in the throat. The redness extended from the face to the hairy scalp, neck, and ears. The skin was very tender, especially around the mouth, and there was œdema of the lids. The redness then extended to the extremities, where, however, it was not continuous, it being disposed on their anterior surfaces in patches separated by islands of healthy skin. At the inferior third of the thigh there were a series of slightly raised papules, about the size of peas, and of limited redness. The visible mucous membranes appeared normal, except the posterior wall of the pharynx, which was slightly reddened. The urine contained no albumen. As the disposition of the exanthem opposed the hypothesis of erysipelas, scarlatina was thought of. But this diagnosis was incompatible with the fact that five months previous the patient had presented analogous symptoms. Besides, the tongue did not present the characteristic modifications which it undergoes in scarlatina; lastly, the papules of the thigh resembled nettle-rash. Prof. Koebner, of Breslau, who saw the patient, remembered an analogous case published by one of his colleagues at Breslau, which had followed the administration of quinine. Dr. Ladurner, of Meran, the attending physician, now also recollected that the similar effects mentioned as having occurred five months before could be ascribed to a small dose of quinine. At that time, the exanthem paled on the ninth day, and was followed by an intense desquamation, which lasted three weeks. There had been no albumen in the urine. A fresh attack of bronchitis having necessitated the resumption of quinine, the same symptoms reappeared, but less intensely, and the desquamation commenced on the fifth day at the palms and soles, and terminated in three weeks.—Prof. Koebner's case occurred in a physician who took one gramme of sulphate of quinine in one dose for the relief of facial neuralgia. A general scarlatiniform eruption developed the same evening, with intense fever, delirium, dyspnœa, and all signs of pulmonary congestion. Scarlatina with pleuro-pneumonia was diagnosticated, but the exanthem disappeared after four days, followed by desquamation lasting three weeks. The author has found only four analogous cases in medical literature, published in the *British Medical Journal* in 1869 and 1870. But Dr. Pflueger, of Berne, has found the above symptoms to appear after the administration of a decoction of cinchona, as well as after sulphate of quinine. So also Dr. Buch, of Hamburg, one, but which was preceded by a syphilitic history, and did not present the general symptoms, but rather those of secondary syphilis.—Dr. Ricklin observes that it would be premature to pronounce a verdict concerning the pathogeny of these eruptions. But he considers it important to be aware of the possibility of the occurrence of such symptoms after the administration of quinine in view of the large number of pretended relapses of fibrile exanthemata, particularly of scarlatina, which have lately been recorded.

Ozone: An Energetic Poison for the Animal Economy.—P. Thénard says that false views prevail among the laity and scientists concerning the action of ozone on the animal economy, for, far from being a remedy, it is one of the most energetic poisons prepared in our laboratories. Especial attention is called to the fact that, under the influence of ozone, and even when the latter is highly diluted, the blood-cells contract rapidly and change their form. The pulse is retarded so markedly that, in a guinea-pig which had a normal pulse-beat of 148, after remaining in an atmosphere containing but little ozone for a quarter of an hour, the pulsations sank to 130. It is possible that ozone may be a means of combating too great an increase of the temperature, but it would be very dangerous to diffuse ozone in the air of an inhabited room with the false hope of thereby removing the miasm. It is true that our strongest poisons may prove to be the best remedies in suitable cases; but it is first necessary to learn how to use them in order not to be deceived as to the proper moment of their application and the dose. The author asks further: Are we indeed certain that ozone exists in the atmosphere? Its presence is recognized by the aid of a strip of paper, the color of which is more or less changed by contact with the air. But how do we know that this change is not produced by some other matter in the air, which modifies the paper in exactly the same manner as the ozone? Wittmann conducted an air-current through the flame of a blast-lamp, and obtained an air which acted on ozonometric paper in exactly the same manner as ozone. While this air disinfected stinking water, without giving it an acid reaction, ozone did not disinfect it, and rendered it acid. It is also known that ozone at a temperature of 200° C. has no stability, while the air modified by Wittmann was exposed to a temperature which softened the glass. The question of the presence of ozone in the atmosphere, as well as of its activity, is not yet settled, and new investigations are necessary for the accurate determination of the facts.—*Comptes Rendus*, and *Memorabilien*, No. 8, 1877. G. R. C.

Citric Acid in Diphtheria.—Dr. Caspari used citric acid exclusively in forty cases of diphtheria, and obtained good results in all of them. In severe cases of adults or larger children he used the citric acid pure for penciling; in small children or in milder cases, diluted with ten per cent. of glycerine. Of all the diphtheritic patients treated thus by Caspari, only two children, less than a year old, died. In these two cases the citric acid was discontinued by the parents, in consequence of the pain complained of by the children.—*Deutsche med. Wochenschrift*, and *Centralblatt f. Chirurgie*, No. 42, 1877. G. R. C.

PATHOLOGY.

On the Development and Propagation of Acute Miliary Tuberculosis.—A series of experiments reported by Ponfick, of Göttingen (*Berl. kl. Wochenschrift*, 46, 1877; *Gaz. Méd.*, 11, 1878), have advanced the theory of Buhl which recognizes as the cause of acute general miliary tuberculosis, a specific virus which is disseminated by the circulation throughout the whole system from a morbid "foyer." As yet this infectious substance could not be isolated, and has only appeared in the form of miliary eruption. Lately, Ponfick has made numerous examinations of the thoracic duct in tuberculous subjects, and has arrived at the conclusion that the thoracic duct is found intact in all cases where death was the consequence of a localized tuberculosis; on the other hand, that, in the majority of individuals dead from acute general miliary tuberculosis, the internal coat of the thoracic duct is the seat of a nodular eruption resembling tubercles. These small "foyers" (deposits) seem to demonstrate that the thoracic duct is traversed by lymph possessing specific irritant properties. As yet, the above is the only proof which we have of the adulteration of the blood by a matter unknown as to its nature, but of whose existence there can be no doubt. E. F.

On the Development of Miliary Pneumonia by Inhalation.—Schottelius (*Centralbl. f. d. med. Wissensch*, 3, 1878; *Gaz. Méd.* 11, 1878), with the object of ascertaining whether the development of tuberculosis is due to a specific virus, introduced various substances into the respiratory passages of dogs, such as sputa from a phthisical patient, sputa from bronchitis, non-tuberculous, particles of cheese, brain of the calf and pig, finely powdered cinnabar. The animals were isolated in cages, the temperature of which was maintained at 65°—78° Fahr. The cages were likewise frequently washed with disinfectant liquors. The following conclusions were arrived at: In all cases the result was a miliary eruption, equally confluent in the dogs which had inhaled bronchial and phthisical sputa. The eruption was less abundant in the dog who inhaled cinnabar: the lung showed very few white nodules with a pigmented centre; there were grains of cinnabar in the interstitial tissue, which had produced no appreciable reaction in the pulmonary tissue. There was no difference in the histological results from the other substances introduced. E. F.

On Syphilitic Pneumonia.—Prof. Sacharfin, of Moscow (*Berl. kl. Wochenschrift*, 3, 1878; *Gaz. Méd.*, 11, 1878), from observations of three cases, thinks that a pulmonary affection of syphilitic origin, and distinct from the tuberculous, should be recognized. This affection, termed syphilitic pneumonia by the author, has a well-defined symptomatology and can be diagnosticated in the living subjects. The author assigns the following points for its recognition. 1. Characteristic clinical history. 2. Robust constitution of the patients. Syphilitic individuals in a debilitated condition have a tendency to become phthisical; hence such are excluded. 3. Objective signs of pulmonary induration; dullness, feeble respiratory murmur, modification of normal vesicular murmur. The subclavicular regions are most affected. Thoracic constriction and pains. 4. Absence of hemoptysis, cough, expectoration, *râles*. 5. Absence of fever. 6. Prompt relief by specific treatment. The lesion is probably interstitial. Dr. Greenfield applied the term syphilitic pneumonia to a specimen exhibited before the London Pathological Society (*Med. Times and Gaz.*, November, 1875), in which the right lung was completely consolidated, with an appearance similar to gray hepatization, but the section was smooth and shining, very dense and tough, and traversed by fine fibrous lines. Through the microscope the alveolar walls were found infiltrated with round cells, spindle cells or fibrous tissue. The subject was a child, and Dr. Greenfield thought that, though this kind of change was occasionally met with in syphilitic children, there was a doubt how far it was due to syphilis. It appeared to be the same as in chronic pneumonia, where no constitutional disease was present. The trouble may commence as an acute pneumonia which becomes chronic. Histologically, and in the absence of other evidence, there will be some difficulty in calling these cases syphilitic. E. F.

On Bronchiectasis.—Dr. Bardenhewer publishes two cases of acute articular rheumatism occurring in the course of a bronchiectasis with purulent secretion, in support of Gerhardt's theory regarding the pathogeny of rheumatoid affections in certain pathological conditions. Gerhardt holds that patients suffering from bronchiectasis, with stagnation, and consequent decomposition of the putrid secretion, are liable to contract rheumatoid affections from absorption of decomposed matters. Such rheumatic affections are throughout comparable to those which develop through the influence of suppurative affections of other mucous membranes (diphtheria, dysentery, gonorrhœa, pyæmia, puerperal fever). Incidentally, Bardenhewer strongly urges the employment of inhalations of carbolic acid, as able to prevent, more than any other medication, the decomposition of the putrid secretion. By suppressing the principal cause of the bronchial irritation, themorbid secretion is diminished, and consequently the fever, which, like the rheumatic manifestations, is the effect of the absorption of putrid products.—*Berl. kl. Wochenschrift*, 3, 1878; *Gaz. Méd.* 11, 1878.

E. F.

DISEASES OF WOMEN.

Rupture of Ovarian Cyst into the Intestine.—M. Terrier reports the following interesting case (*Revue Mensuelle; Gazette Médicale*, 9, 1878): The patient, afflicted for two years with an ovarian cyst, entered the hospital one month after confinement. She was anæmic, had daily fibrile exacerbations, and sleep was disturbed by pain in the hips when she assumed the recumbent posture. The increase in size of the abdomen was noticeable. Twelve days after admission, a redness of the umbilicus was observed. On the next day, the tumor, after having been harder and more tender, suddenly became less tense and less painful. Almost immediately after this, a colliquative diarrhœa commenced, consisting of twelve to fifteen passages daily. During the following days, the abdomen grew less, the tumor became soft, and percussion clearly denoted the presence of gas. The diarrhœa soon ceased, instead of which large quantities of gas escaped. Hydro-aëric bruit on succussion. The tumor gradually became effaced, and the patient slowly recovered without other symptoms than a small absces over the linea alba, which, however, had no appreciable connection with the cyst. Patient left the hospital completely well five months after the evacuation of the cyst. Opening of an ovarian cyst into the intestine, M. Terrier observes in a lengthy memoir, can take place spontaneously, or follow a traumatism, pregnancy, or intestinal lesion. In the first case, it often appears to result from inflammation of the cyst wall, and is preceded by symptoms of peritonitis. Traumatism also first gives rise to inflammation and adhesions, and only then to rupture by ulcerative action. In some cases the peritonitis appears to be developed primarily. Lastly, pregnancy and abortion can produce inflammation, suppuration, and rupture of the cyst into the intestine. The inverse process, that is, a primary lesion of the intestine giving rise to circumscribed peritonitis and ulteriorly to the communication of the cyst with the digestive tube, also does, but rarely, take place. Cases have been observed of communications of cysts with the stomach, large intestine, cæcum, colon, and sigmoid flexure; but the communications have been most frequent with the rectum, corresponding to the frequency of pelvic peritonitis in the female. Large volume of the cyst does not appear to be of chief importance in causing the rupture, except in so far as augmentation of the contents under the influence of inflammation and the resulting tension facilitates it. The contents of the cysts are sometimes serous, sometimes sanguineous, but the character of the stools has not been carefully recorded. Without being absolute, it may be said that, as a rule, unilocular cysts have been known to open into the digestive tube. Most often, the symptoms resemble those of diarrhœa, the evacuation of cystic liquid mixed with fecal matter accompanied by more or less intense colic. Resonance, as resulting from the penetration of intestinal gas into the cyst, seems to have been seldom observed. The question also arises whether gases can develop spontaneously in the cyst, as in the case of cold abscesses, etc. Lumpe has observed a notable augmentation of the urinary secretion up to the moment of rupture. As to prognosis, Terrier regards this result of rupture into the intestine as favorable in case of unilocular cysts, and the liquid is thoroughly discharged by the bowels, consequently, when the rupture takes place into the rectum. Otherwise, interminable suppuration may result in exhaustion or putrid infection. Among thirty-five collected cases, only seventeen are available for statistical purposes. Of these seventeen, eleven recovered and six died. But perhaps the results would have been more favorable if, in some cases, as M. Terrier suggests, antiseptic injections had been made through the rectal fistula or by puncture through the abdominal wall; also the performance of ovariotomy after rupture, preserving intact the adhesions to the intestine, and fixing them to the abdominal wall, as in the case of the wall of a firmly-adherent cyst.

PHYSIOLOGY.

Theory of Secretions.—Kendall and Luchsinger have repeated the experiments made by Goltz, which show that, during the excitation of the sciatic or brachial nerves, there is frequently, but not constantly, observed a marked secretion of perspiration in the hairless parts, as, for example, on the paws of dogs and cats. This takes place even when the temperature of these localities is very low. There was no general hyperæmia of the paws, but merely a local hyperæmia of the sudoriparous glands. The same fact is observed when, before the excitation of the nerve, the crural arteries and the aorta have been ligated. It is thus demonstrated that the secretion of perspiration is entirely independent of the circulation, and that it is in direct relation with the excitation of the nerves. An analogy is also recognized between this phenomenon and the researches of Ludwig on the salivary glands.—*Pflüger's Archiv*, and *Jour. des Sci. Méd. de Louvain*, August, 1877. G. R. C.

Miscellany.

Artificial Respiration in the New-Born.—Dr. Francis Imlach, in the *Lancet* of June 22d, says in regard to artificial respiration in the new-born infant: "Allow me to suggest a simple and direct method of stimulating the circulation, which I have occasionally employed during the last twelve months. Doubtless in the majority of *still*-births the sole care is to establish respiration. But sometimes with gasping inspiratory efforts there is imperceptible heart-beat, and often, while as yet artificial respiration has failed, the heart-beat, at first quick and strong, grows slow and weak. In such cases mere continuance of artificial respiration becomes almost hopeless, and I inject ammonia into the umbilical vein. A convenient instrument may be obtained for a few pence. Fill a two-drachm drop-bottle with one part of liquor ammoniæ and four parts of distilled water, and replace the upper expanded part of the perforate glass-stopper by an imperforate rubber teat. The diameter of the tube of the stopper, which is to be inserted into the vein, should not be more than one-tenth of an inch. This little instrument, kept in a boxwood case, is always ready for use, and will, I think, prove a valuable addition to the obstetric bag. Empty the vein of blood, and gently fill with solution to the umbilicus; drop by drop impel it by the finger toward the heart, and, when its beat is strengthened, carefully drain the vein of superfluous solution, and apply a ligature. The effect upon the heart-beat is often instantaneous, but respiration is not markedly influenced, and still requires aid.

Medical Society of the State of Pennsylvania.—At the annual meeting held in Pittsburg, May 29th, 30th, and 31st, Dr. D. Hayes Agnew, President, in the Chair, the following officers were elected for the ensuing year: President, Dr. James L. Stewart, of Erie; Vice-Presidents, J. T. Carpenter, Schuylkill; William Goodell, Philadelphia; A. M. Pollock, Pittsburg; Permanent Secretary, William B. Atkinson, Philadelphia; Recording Secretary, J. N. Kerlin, Delaware; Corresponding Secretary, O. H. Allis, Philadelphia; Treasurer, Benjamin Lee, Philadelphia. The Society recommended the adoption of the metric system, and the appointment of female physicians in asylums for the insane. The next meeting will be held in Chester, on the last Wednesday in June, 1879.

The New Medical Register.—The sixteenth volume of this indispensable work appears under the editorship of Dr. William T. White. The plan adopted by Dr. Purdy has been so closely followed that the change in editors would hardly be suspected. Both Dr. White and his predecessor deserve the gratitude of the profession for their labors in the cause of careful and complete registration. We may mention as a matter of some interest that the list for New York City contains 1,308 names, and that for Brooklyn 394 names. The total number of physicians registered in the volume, which includes New York, New Jersey, and Connecticut, is 5,080. G. P. Putnam's Sons are the publishers.

Medical Society of the State of New Jersey.—The one hundred and twelfth annual meeting was held at Spring Lake, May 28th and 29th, under the presidency of Dr. H. R. Baldwin, whose address was on "Contagious Diseases and their Prevention." The following officers were elected: President, Dr. John S. Cook; Vice-Presidents, Drs. A. W. Rogers, A. N. Dougherty, and L. W. Oakley; Corresponding Secretary, W. Elmer, Jr.; Recording Secretary, Wm. Pierson, Jr.; Treasurer, Dr. W. W. L. Phillips; Standing Committee, Drs. S. Wicks, S. Lilly, and J. L. Bodine. The next meeting will be held in Englewood.

Studies in Pathological Anatomy.—Five monthly parts of Dr. Delafield's work have now been issued. The author's drawings are reproduced with the utmost fidelity, and together with the text will constitute an exceedingly valuable contribution to pathology. As the work progresses it will be noticed fully, but in the mean time we confidently advise all who are interested in pathology to possess themselves of the studies as they appear, as it is thus easier to follow the author in his course of investigation, and also because the first impressions of the drawings are usually the best.

Massachusetts State Medical Society.—The annual meeting was held in Boston, June 11th. The following officers were elected for the ensuing year: President, Dr. George H. Lyman, of Boston; Vice-President, Dr. David P. Smith, of Springfield; Treasurer, Dr. Frank W. Draper, of Boston; Corresponding Secretary, Dr. Charles W. Swan, of Boston; Recording Secretary, Dr. F. W. Goss, of Boston; Librarian, Dr. D. H. Hayden, of Boston. A full report of the proceedings will be found in the *Boston Medical and Surgical Journal*, for June 20th.

Death from Ether.—The *Medical Times and Gazette* of May 18th reports a death from ether, which occurred in the London Hospital, May 10th. The patient was a man suffering from strangulated hernia. He was easily brought under the influence of the anæsthetic, and breathed regularly for a few minutes, but then made a sudden catching effort at inspiration and ceased to breathe. The pulse continued to beat for about thirty seconds after the breathing had ceased. The quality of the ether used is not stated.

The French General Medical Association.—The twentieth annual meeting of this body, which has over seven thousand members, was held recently, under the presidency of Prof. Henri Roger. The treasurer reported that the society had more than a million francs in its possession. The Minister of Public Instruction has invited the Association to prepare and submit to the Government a plan for the organization of medicine throughout France.

Medical Features of the Paris Exhibition.—We take the following from the Paris Correspondence of the *Lancet:*

In this Exhibition of the City of Paris, so full of sanitary aspects, and which attracts a large crowd anxious to study its various features, the Assistance Publique, or general administration of the Paris hospitals, occupies a very prominent part. The Assistance Publique has two pavilions, in which it has collected the most interesting specimens of its various economical arrangements or historic records. In one of these pavilions is a glass press, the contents of which would delight and absorb the attention of an antiquarian for more than a week. It contains the most venerable documents of the Hôtel Dieu, going back to the twelfth century, with the colored parchment account-books of the pilgrims of St. Jacques, and other manuscripts of the highest historical value. Here are also to be found the uninterrupted annual series of account and budget books of the Hôtel Dieu, and other hospitals through ages down to our time. Near this press is a case containing the surgical instruments which belonged to the great Dupuytren, the surgeon to the Hôtel Dieu. Indeed, almost the whole of this pavilion, with the exception of a few things, is consecrated to the history and glory of the Hôtel Dieu. The walls are hung with pictures of its various appearances and changes since its earliest foundation, and with plans of the new building which has replaced it.

The other pavilion is a typical reproduction of the wards of a Paris hospital, or at all events of the arrangements concerning each patient in a ward. Here is the bed, with the curtains, which are now given up entirely in England and in other countries, but are still in favor here. However, if I understand aright M. Michel Moring (the Director of the Assistance Publique), a plan of movable *paravents* will be tried, as a substitute for curtains, in the new and model Hôpital de Ménilmontant. Here is the *pancarte*, or bill, stuck up at the foot of the bedstead—the horrible *pancarte*, for which there is no excuse, and on which are related in full detail the name, religion, age, and disease of the patient. Here also are to be seen the typical specimens of mattress, bedding, chair, table, utensils, and, in fact, everything employed for each particular patient in the Paris hospitals; not to mention the surgeons' cases of instruments, the table, stretchers, etc. In a word, the object of the Assistance Publique is to give the visitor a correct idea of what is to be seen in a hospital ward.

Between the two pavilions is a very perfect model of the lying-in pavilion, which has been built up at the lying-in hospital according to Dr. Tarnier's plans, and which is commonly known as Dr. Tarnier's "Model Pavilion." It consists of a ground-floor and first story, each containing four bedrooms, which have no communication between themselves, and all open from the outside. In the centre of the rooms is an office looking upon the four apartments by means of a glass pane, so that a single person can exert supervision over the four rooms.

Between the two pavilions are likewise to be found extensive views and plans of the new Hôpital de Ménilmontant and the Maritime Hospital of Berck-sur-Mer. These are worthy of particular attention. The Hôpital Ménilmontant is intended to be a model hospital, with all the most recent improvements in hospital hygiene, while Berck-sur-Mer is a realization, and a most successful one, in France of the maritime hospitals which are extensively used in Italy for scrofulous children, and constitute the treatment *par excellence* of scrofula and rickets.

The Direction of the Sewers and Waters of Paris has also been very successful in getting up a most valuable exhibition in this pavilion of the city. Models of everything relating to the sewers of Paris, which are accounted so perfect in their architectural arrangements, and are visited with intense curiosity by all who come to Paris, have been carefully gathered and exhibited here. The little models of the large and small collectors and pipes built with railways, and intended to be swept and kept clean by sweeping-vans, are exceedingly perfect. So also are the models of all the trucks, the vans, the railway cars, and boats which are used for floating on the sewer waters or gliding on the rails, and are elaborately and ingeniously contrived for the purpose of visiting, repairing, or cleansing the pipes.

Another important part of this exhibition is the one intended to show the utilization of sewage. This occupies one-half of the gallery running round the pavilion, and facing the Foreign Section. Here are brought every day the huge cabbages, potatoes, and artichokes grown in the *plaines* of Gennevilliers. Specimens of flourishing thyme, sage, aniseed, and angelica are also exhibited fresh, and a one-year poplar of surprising growth dominates all this vegetable kingdom. These various productions of a soil of exuberant fertility come from a place where formerly all cultivation was unknown on account of the barren sandiness of the soil. Everything that can illustrate this system of utilization is shown in maps, models, or original specimens. The works established for the construction of the pipes are represented. So also the forcing-pumps. The fields of Gennevilliers are represented in a large model, with the trenches, the pipe orifices, the irrigating tubes, etc. Conspicuous on a shelf are three bottles—one containing the thick, greasy stuff called *eau d'égouts*, or sewer-water, such as it is brought to Gennevilliers; the second, clear transparent water which collects at a certain distance below the surface of the soil after having filtered through the sand, and then returns to the Seine; and the third, the residue of this filtration, which subsides in the trenches in the form of a peculiar sand.

This direction has had the felicitous idea of exhibiting elsewhere a complete and graphic description of all the great works which have been undertaken for the purpose of bringing the pure water of the Dhuys and the Vannes from hundreds of miles into the capital, so as to supply its inhabitants with a perfect and reliable type of potable water. About one-half of Paris is already provided with this inestimable boon, which will soon be conferred on the other half; and it is really quite a relief to the visitor of this pavilion, after he has examined the admirable sewer arrangements of Paris, and the wonderful results of sewage at Gennevilliers, to go and dream of pure air and water before the views of the green valleys of Dhuys and Vannes, the aqueducts through the forest of Fontainebleau, and other pleasant aspects of water collection and distribution.

Before leaving this pavilion, so full of interest to a visitor concerned in hygiene, I must at least make a passing reference to a very complete model, exhibited, I think, by M. Alphand, and showing all the arrangements of a portion of the Boulevards. Everything relating to a house and street, the sanitary arrangements, the getting and distribution of air, light, and water, are shown with wonderful precision and correctness. This corner is invariably crammed with an eager crowd, and I do not remember ever having seen a more perfect, and, I think, useful description of the arrangement of a house and the part played by air, light, and water in human existence.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from June 14 *to July* 13, 1878.

SMITH, A. K., Major and Surgeon.—Assigned to duty at General Recruiting Depot, David's Island, New York Harbor. S. O. 143, A. G. O., July 3, 1878.

Town, F. L., Major and Surgeon.—Granted leave of absence for eight months, with permission to go beyond sea. S. O. 128, A. G. O., June 13, 1878.

Middleton, P., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Porter, New York. S. O. 120, Department of the East, July 13, 1878.

Taylor, M. K., Captain and Assistant Surgeon.—Leave of absence extended four months. S. O. 142, A. G. O., July 2, 1878.

Heizmann, C. L., Captain and Assistant Surgeon.—To report to Captain Thomas Byrne, Twelfth Infantry, for duty with his command. S. O. 82, Division of the Pacific and Department of California, June 8, 1878.

Girard, A. C., Captain and Assistant Surgeon.—Assigned to duty at Fort Keogh, Montana Territory. S. O. 72, Department of Dakota, June 14, 1878.

Pope, B. F., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Schuyler, New York Harbor. S. O. 116, Department of the East, July 8, 1878.

Kimball, J. P., Captain and Assistant Surgeon.—Assigned to duty as Attending Surgeon at Headquarters, Department of the East, Governor's Island, New York Harbor. S. O. 143, C. S., A. G. O.

Campbell, A. B., Captain and Assistant Surgeon.—Granted leave of absence for two months. S. O. 139, A. G. O., June 28, 1878.

Corson, J. K., Captain and Assistant Surgeon.—Assigned to temporary duty at Fort Whipple, Arizona Territory. S. O. 64, Department of Arizona, June 13, 1878.

Patzki, J. H., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Ontario, New York. S. O. 120, C. S., Department of the East.

Hall, J. D., Captain and Assistant Surgeon.—Assigned to duty at Fort Stockton, Texas. S. O. 124, Department of Texas, June 14, 1878.

Ainsworth, F. C., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of Arizona and assigned to duty in Department of California. S. O. 142, C. S., A. G. O.

Skinner, J. O., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Camp Bowie, Arizona Territory. S. O. 66, Department of Arizona, June 19, 1878.

Merrill, J. C., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one month on surgeon's certificate of disability. S. O. 126, Department of Texas, June 17, 1878.

Hall, W. R., First Lieutenant and Assistant Surgeon.—Assigned to duty with troops from Fort Canby for field service. S. O. 65, Department of the Coumbia, June 3, 1878.

Barnett, R., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort McKinney, Wyoming Territory. S. O. 53, Department of the Platte, June 11, 1878.

Crampton, L. W., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Randall, Dakota Territory. S. O. 72, C. S., Department of Dakota.

Wood, M. W., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort McPherson, Nebraska. S. O. 53, C. S., Department of the Platte.

Taylor, M. E., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Bliss, Texas. S. O. 53, District of New Mexico, June 21, 1878.

Spencer, W. G., First Lieutenant and Assistant Surgeon.—To report to the chief medical officer on duty with troops in the field. S. O. 65, C. S., Department of the Columbia.

Rosson, R. L., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Yuma, California. S. O. 66, C. S., Department of Arizona.

La Garde, L. A., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Hamilton, New York Harbor. S. O. 116, C. S., Department of the East.

Having passed a satisfactory examination before the Army Medical Board, in session in New York City, the following named gentlemen have been appointed Assistant Surgeons of the United States Army by the President, to date from June 6, 1878, and confirmed by the Senate: Victor Biart; W. W. Gray; Louis Breckemin, and Louis A. La Garde.

Reynolds, Frank, Captain and Assistant Surgeon.—Retired from active service, in conformity with Sect. 1251 Revised Statutes. S. O. 139, C. S., A. G. O.

Obituary.

Brevet Brigadier-General J. J. B. Wright, a veteran medical officer of the United States Army, and among the most widely-known and esteemed of the medical staff, died at his residence in Carlisle, Pa., May 14, 1878. General Wright was born in Wilkesbarre, Pa., in May, 1801, where his parents had long previously resided. He received the degree of A. B. from Washington College, Pa., and, a few years subsequently, graduated in medicine at the University of Pennsylvania; he afterwards received an honorary degree of Doctor of Medicine from the Jefferson Medical College. Dr. Wright commenced the practice of his profession near his native town, and, though soon engaged in a large practice, he was induced by his brother, Major Thomas Wright, Paymaster, United States Army, to present himself for examination before the Army Medical Board—was approved, and appointed Assistant Surgeon, United States Army, October 25, 1833. During the first ten years of Assistant Surgeon Wright's official career, his services were at stations far beyond the centres of commerce and the busy marts of trade, and at posts accessible only after weeks of travel. He participated in the operations against the Seminole Indians in Florida, 1841–'42, and here rendered efficient and valuable service.

In 1846 he was attached to General Zachary Taylor's "army of occupation," was present at the battles of Palo Alto and Resaca de la Palma, and received especial commendation from his commanding officer for efficiency and zeal in the performance of arduous duties; immediately subsequent to these operations he had charge of the General Hospital at Matamoras; during the campaign from Vera Cruz to the city of Mexco, Surgeon Wright was Medical Purveyor of the army; he was especially commended for efficiency at the battle of Cerro Gordo; at Contreras and Churubusco he performed his duty in such manner as to elicit especial mention in the report of General Worth, who also alludes to him in terms of high commendation in the report of the operations of his division at Molino del Rey. Soon after the Mexican war, Surgeon Wright was on the staff of Major-General Worth, with headquarters at San Antonio, Texas; he served here during the prevalence of an epidemic of Asiatic cholera of unprecedented violence. Subsequently he was engaged in various expeditions in the West during 1857 and 1858. During the late war, Surgeon Wright, while on the staff of Generals McClellan and Rosecrans, participated in some of the engagements in West Virginia. Afterward he was Medical Director, Department of the Missouri, on the staff of General Halleck. He attained the grade of Colonel and Brevet Brigadier-General and was retired from active service in December, 1876.—*Medical Record.*

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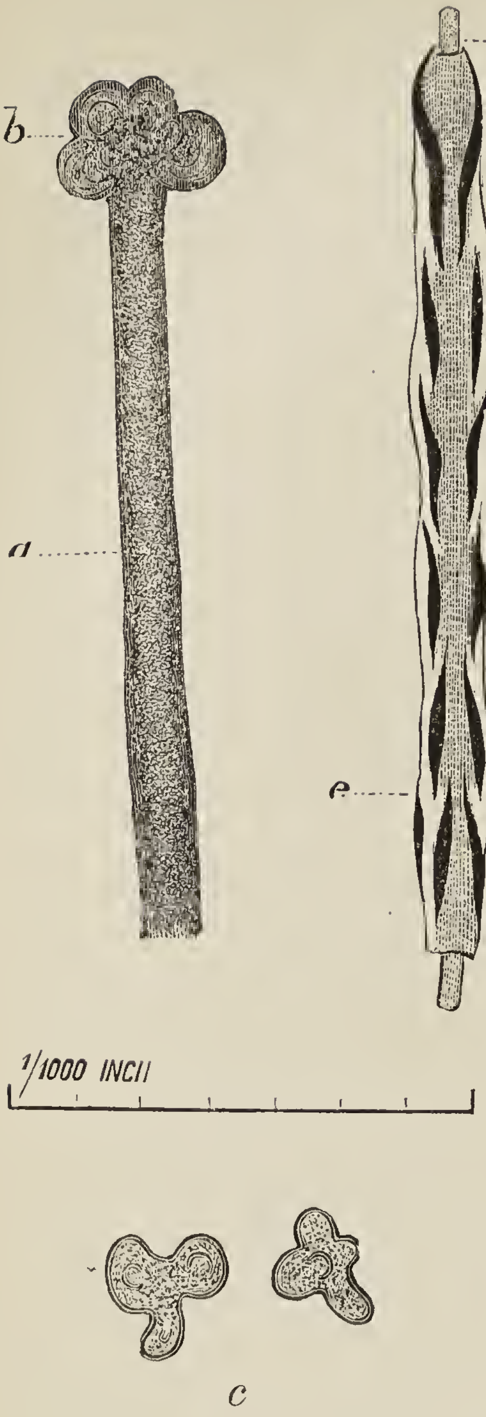
Fig. 1.



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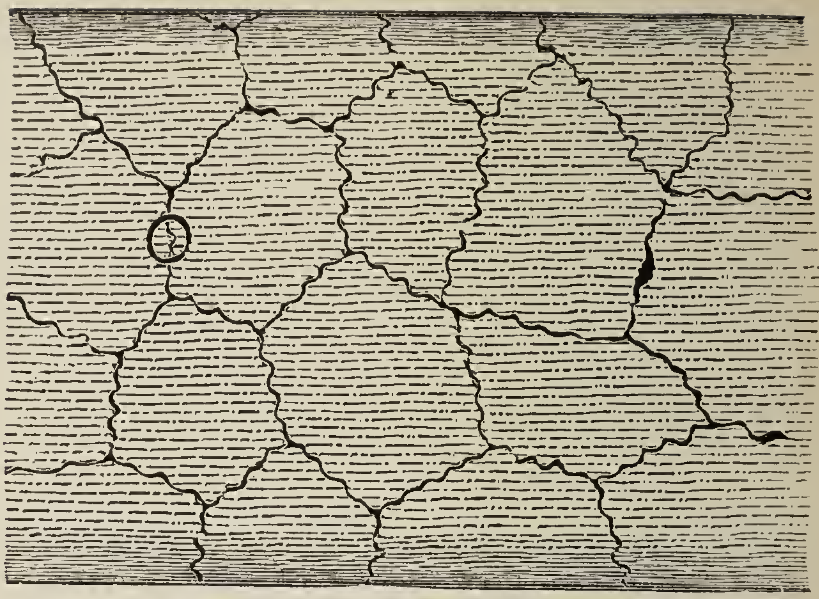

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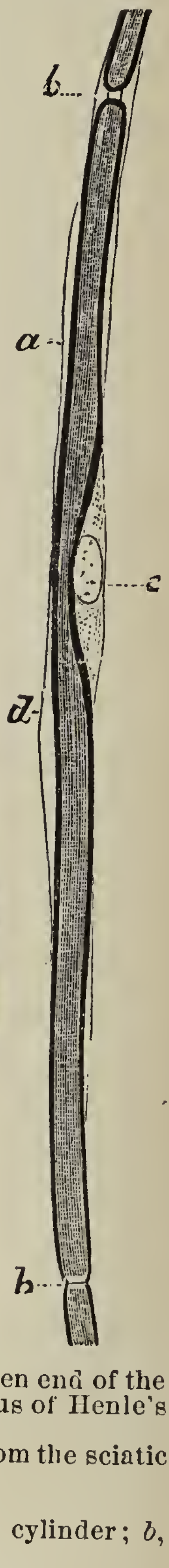

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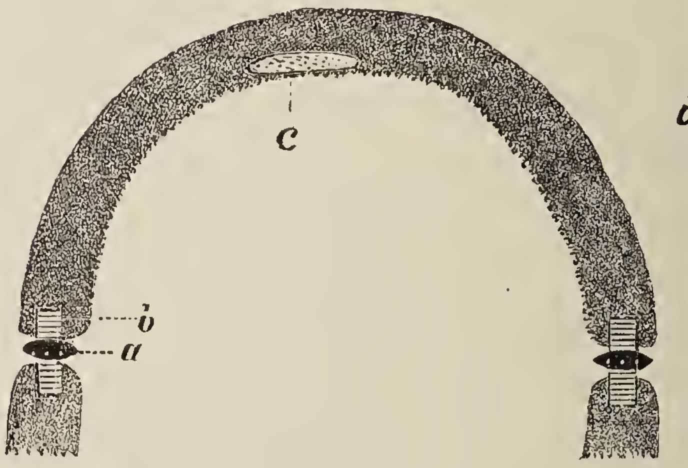

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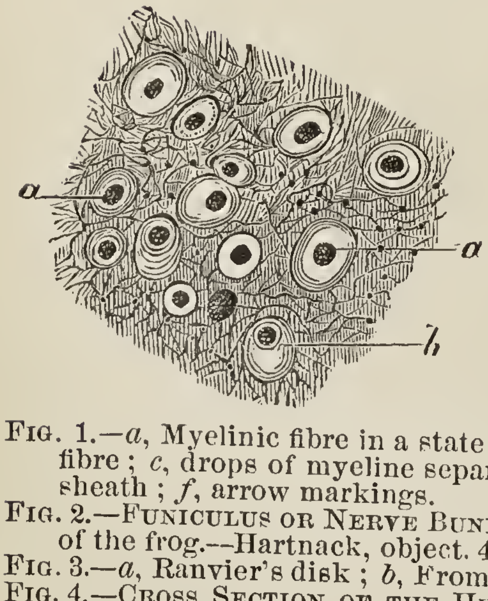

Fig. 1.—*a*, Myelinic fibre in a state of "coagulation;" *b*, myeline exuding from the broken end of the fibre; *c*, drops of myeline separated from the nerve fibre; *d*, axis cylinder; *e*, nucleus of Henle's sheath; *f*, arrow markings.

Fig. 2.—Funiculus or Nerve Bundle covered with Endothelium (Epithelium). From the sciatic of the frog.—Hartnack, object. 4, oc. 2.

Fig. 3.—*a*, Ranvier's disk; *b*, Frommann's lines; *c*, nucleus of interannular segment.

Fig. 4.—Cross Section of the Human Cord just below the Decussation. *a*, Axis cylinder; *b*, sheath of Mauthner.

Fig. 5.—Human Myelinic Nerve. *a*, Interannular segment; *b*, Ranvier's node, *c*, nucleus of the interannular segment surrounded by granular protoplasm; *d*, Henle's sheath with nucleus.

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Original Communications.

Art. I.—*Notes and Practical Studies on the Minute Elements of the Nervous System.* By Dr. Thomas E. Satterthwaite.

A great deal of extended work has been done of late years on the minute structure of nervous tissue; but still there seems to be a general agreement among recent writers on these matters that we have by no means reached a clear understanding of the histological characters of even the simpler elements.

As examples, we may cite the conflicting views that are expressed as to the composition of the axis-cylinder in medullated nerves; as to whether the pale or gray fibres branch or do not; as to the processes of ganglion corpuscles, and their relation to other similar corpuscles and nerve-fibres; as to the presence of spiral fibres in the human species; the methods by which nerves terminate, etc. It will be my aim in this paper to classify our existing knowledge on the principal fundamental points, and add the result of my own experience so far as it bears upon them.[1]

In getting a conception of the minute anatomy of the nervous system, we must think of it as composed of three principal parts, of fibres (1) connected on the one hand at the nerve-centres with certain elements, the *ganglion corpuscles* (2), and at the periphery with others that have been named *terminal bodies* (3). The nerve-centres are the brain, cerebro-spinal axis, and certain other smaller centres known as spinal or sympathetic ganglia, according as they are in connection with the cerebro-spinal or sympathetic system of nerves.

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[1] Thanks are due to Dr. W. H. Porter, Curator of the Presbyterian Hospital, and to my students Messrs. Aycrigg and Carryl, for their assistance in the preparation of many of the microscopical specimens.

At the points where the nerves are finally distributed, they enter the bodies known as terminal, which are called, according to certain peculiarities in them, Pacinian bodies, tactile corpuscles, end bulbs, etc. So far as we know, however, they may not always end in this way, but may form terminal networks, or indeed end in epithelial bodies, as in the retina, or even possibly may have free termini. It is convenient to study these different parts in the order in which they have been named.

Nerve fibres.—Of these there are three kinds that have distinctive differences: 1. The myelinic or medullated fibres; 2. The fibres of Remak; 3. Ultimate fibrils. Intermediate forms, such as have been described by various writers, under the names of protoplasmic processes, primitive fasciculi or naked axis cylinders,[1] varicose cylinders, etc., will be noticed in other connections.

Myelinic fibres.—These are also known as the medullated. To the naked eye they appear white and glistening and are the main constituents of the peripheric nerves, though they occur in less number in the sympathetic and also in the brain and cord. Three distinct parts constitute each fibre: (*a*) a central cylindrical cord, the axis-cylinder about which is a (*b*) coating of a soft homogeneous fatty substance, called myeline (medulla, white substance of Schwann), forming for the axis-cylinder a sort of tubular sheath, while exterior to both is a delicate membrane or envelope (*c*), the sheath of Schwann or primitive sheath.[2] These fibres run a parallel unbranching course, except near their termini or origin, and are surrounded by a

[1] Max Schultze, "Manual of Histology," p. 117.

[2] A most unfortunate source of confusion among histologists has arisen from the use of the word neurilemma, which by some is spoken of as synonymous with Schwann's sheath (Frey), and by others as the connective tissue which binds the nerve fibres together (Klein, Rutherfurd). We shall avoid the term altogether.

connective-tissue coating of varying thickness. Their diameter varies according to their situation and the degree of their tension or relaxation. In the nerve trunks the average diameter lies between $\frac{1}{70}$ and $\frac{1}{150}$ millimetre. In the brain they are described as having sometimes a diameter of $\frac{1}{500}$ millimetre, but it is difficult to determine the question of a medulla in such small fibres.

To study the properties of a myelinic nerve in as nearly the fresh state as possible, we may take the sciatic from a frog that has just been killed. Having removed it with care and placed it in a drop of water on a slide, we may separate the fibres carefully with needles, taking care not to tease them. Having adjusted a covering glass, we shall see that from the broken end of the nerve a soft substance is exuding (Fig. 1, *b*); in a few minutes this matter is pushed off in the form of drops of irregular shapes (Fig. 1, *c*). This material is the myeline or medulla. It will be seen to refract the light strongly, and show concentric markings. It will also be seen that each fibre has a double contour and is divided at tolerably regular intervals by transverse lines, which are now known as Ranvier's nodes. (*See* Fig. 5.) Midway between each node we may perhaps see an oval body surrounded by a broad expansion of protoplasm. In a few fibres we may see that a fine thread-like process is projecting from the broken ends of the nerve fibre—the axis-cylinder (Fig. 1, *d*), while the whole fibre is enclosed by a delicate tightly-investing membrane, the sheath of Schwann. Possibly we may also see the oblique or arrow markings (incisures of Schmidt) (Fig. 1, *f*), which seem first to have been accurately described by Schmidt,[1] of New Orleans, later by Lantermann, of Cleveland,[2] Shaw,[3] and others.[4] Much the same appearances can be obtained by the use of iodized serum.

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[1] On the construction of the dark or double-bordered nerve fibre, *Monthly Microscopical Journal*, May 1, 1874.

[2] Ueber den feineren Bau d. markhält. Nervenfasern, *Archiv für mikroskopische Anatomie*, 1870, vol. xiii., p. 1.

[3] Some peculiarities in the myelinic peripheral nerves, etc., *Journal of Nervous and Mental Diseases*, January, 1876.

[4] They had been noticed by Remak as early as 1837, and subsequently by Stilling and Lockhart Clarke.

The double contour is not always to be seen in all the myelinic nerves, but is most marked where they show varicose swellings, due to a preponderance of myeline at the enlarged point. From this fact and another, that the drops of myeline when separated from the fibre show the same double contour, it is argued that the double marking in the fibre is due to a refracting (double) of the myeline, and has nothing to do with the membranous sheath. These varicosities just mentioned are not to be confounded with the bulgings of the ultimate fibrils, or with the "necklace" appearances seen in the course of the fibres of Remak, both of which latter may probably be regarded as artificial productions, either from stretching in the act of teasing or from the imbibition of water. In the brain of the calf they are frequently seen, and they are said to be found in the intercranial part of the olfactory, optic, and acoustic nerves. The fibres in which this change occurs are usually quite small.

Staining in Picro-Carmine.—This reagent has been recommended by Ranvier. It is satisfactorily prepared by Rutherfurd's process.[1]

Taking precautions not to injure the nerve in removing it, mount in the solution. The nuclei will then be stained a brick-red, while the sheath of Schwann, and, in fact, the whole nerve, will be stained yellow. It is said that, if the axis-cylinder projects, it will be stained a bright red, though twenty-four hours may be required to effect the staining. In my hands picro-carmine has not proved so successful a coloring agent as some others.

Staining with the Nitrate of Silver.—The sciatic or any peripheral nerve may be employed. Expose it without removal in a frog that has just been killed. Then dry up all fluid from about it, and pour on a solution of the nitrate (1 to 1000). In this way the nerve-fibres will be made rigid. They are then to be removed with a pair of delicate scissors, and placed in a flat vessel containing more of the solution. After a few minutes the nerve will look turbid, and then it should be cut out and washed in distilled water, and exposed to the sunlight. In a variable time (10 to 15 minutes) the turbid appearance will give way to a brown coloration. Examining a single funiculus or bundle in glycerine, it will be seen that it has an epithelial (endothelial) coating of one or more layers.

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[1] He takes 100 C. C. of a saturated solution of picric acid. He then prepares an ammoniacal solution of carmine by dissolving one gramme in a few C. C. of water, with the aid of an excess of ammonia and heat. He then boils the picric acid solution on a sand bath, and when boiling adds the carmine solution. He then evaporates the mixture to dryness, then dissolves the residue in 100 C. C. of water, and filters. If the solution is not clear, he adds more ammonia, evaporates, and then dissolves as before.

If another funiculus be separated with fine needles,[1] the same care being taken to spread the fibres apart and not tease, and so lacerate them, it will be seen that each fibre contains a series of *Latin crosses* at certain pretty regular intervals. The transverse bar of the cross corresponds to the "annular constriction" seen at Ranvier's node, while the axis-cylinder forms the longitudinal bar. Close observation with high powers will show that this latter is marked by transverse lines of a dark brown or black (Frommann's lines). It appears probable, as Ranvier[2] explains, that, owing to the break in the myeline at the "annular constriction," the particles of silver gain an entrance to the axis-cylinder at this the only unprotected spot. If the action of the salt is long continued, the axis-cylinder is colored for a somewhat longer distance. The transverse bar seems to be formed of two conical segments set base to base. The position of this biconical segment usually corresponds in position with the "annular constriction," but it would appear that they may be separated, for, when the tissue of the nerve has been put upon the stretch, the biconical segment may be drawn away from the annular constriction. (*See* Fig. 3.)

Now, as Schwann's sheath is understood to end at the annular constriction, where it is cemented to the next adjoining segment just as epithelial cells are joined together, the biconical disk may belong to the axis-cylinder exclusively, and

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[1] Milliners' are the best.

[2] "Leçons sur l'Histologie du Système Nerveux," Paris, 1878.

merely constitute a dividing line between its segments. According to Engelmann, the axis-cylinder is divided up into portions corresponding with the interannular segments.

Staining of the Nerve in Osmic Acid—Semi-Desiccation.—Osmic acid is one of the most valuable reagents for histological work, and the method now to be described (a modification of Ranvier's[1]) succeeds well. Take the sciatic of the frog, or any other peripheral nerve, carefully remove a portion with the surrounding tissue, keep the whole extended upon a flat bit of cork with pins, and then dip it into a vessel containing a one per cent. watery solution of osmic acid.[2] The vessel is then to be exposed to the light. The whole nerve will be more or less thoroughly stained in a few hours. The external portions, however, will be stained in a few minutes, and they may be removed by careful separation with fine needles. To mount, take a glass slide and slip it under the nerve-fibres, while the needle is employed to draw them up on to a dry part of the slide where they can be placed side by side. Then remove the excess of water with bibulous paper, and let the fibres get so dry that they adhere to the slide. Place about them a ring of tissue-paper so that when the cover is adjusted it will not press upon the fibres. Fix the cover at different points with paraffine, then put a drop of glycerine upon one side, and a drop of water upon the other. The union of water and glycerine should be allowed to go on for twenty-four hours in a damp place. The constrictions and arrow-markings are usually well seen. The nuclei also are occasionally to be found in a niche of the myeline. These bodies, however, are better seen in specimens that have been a short time (15 or 20 minutes) in osmic acid, and then in picro-carmine a few hours. It still is a question among histologists whether the arrow-markings are artificial or not; each of the sections lying between the markings is called the cylindro-conical segment (*Hohlcylinder*, Kuhnt). (*See* Fig. 1.)

Transverse Sections of Myelinic Nerves.—Certain points are best seen by making transverse sections. Prepare the sciatic of a frog or any of the human peripheral nerves by immersing a few days in a sherry-colored solution of bichromate of potash or in Mueller's fluid,[1] and then in ninety per cent. alcohol, until the tissue is hard enough to cut. Then it is to be mounted in the microtome in wax and oil of about its own consistence. Sections are to be made with the razor, or it may be mounted in elder-pith in the following way: Bore out from the centre of the pith-cylinder a cylindrical hole a little larger than the trunk of the nerve, then immerse the whole in water, and the pith will begin to swell. As soon as it has firmly embraced the nerve, sections may be made with the knife. Ammonia-carmine will stain the axis-cylinder well, but the outline of the cut will appear irregular rather than round. This appearance is doubtless artificial. In my hands, borax carmine[2] has proved much better than the ammonia-carmine, as it diffuses very little, and much of the excess may be removed by dilute acetic acid (about one-quarter per cent.), in which the specimen should remain, from a few seconds to a minute or two, until it has become bright to the eye. The further steps in the process of making a permanent preparation are the same as those for other specimens; i. e., it may be mounted in glycerine and water, or clarified by clove oil and mounted in dammar varnish or Canada balsam.

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[1] *Op. cit.*

[2] The solution should, of course, have been kept in a dark bottle away from the light.

Preparation by the Bichromate of Ammonia.—Ranvier employs of this a two per cent. solution, allowing the specimen to remain, with frequent changes of the fluid, from two or three months to a year. The sections are to be stained in ammonia-carmine or picro-carmine, and mounted in glycerine. It will then be seen that immediately about the axis-cylinder is a sheath. This is called by Ranvier the sheath of Mauthner, from the author who described them. (*See* Fig. 4.) Specimens prepared in the ordinary way, by long immersion in

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[1] The well-known eye-fluid, of which the composition is—

Bichromate of Potash,	2–2½	grammes.
Sulphate of Soda,	1	“
Distilled Water,	100	“

[2] The powder is prepared by Eimer & Amend of this city (205 and 207 Third Avenue) according to Arnold's formula. The strength required is gr. xv to ℥ i distilled water.

Muller's fluid alone, or subsequently in the chromic acid solution (gr. ij– ℥i) and stained with ammonia-carmine, occasionally show the same thing.

Sometimes histologists find that embedding in gum succeeds best in securing these transverse sections of nerves. The difficulty of the task is one of considerable moment. The method is as follows: Take a fresh nerve, harden it in osmic acid (one per cent., if it is desirable to expedite the process, or one-tenth per cent. if it is not necessary to conclude the examination the same day). Then, when the nerve is thoroughly blackened all through, it is to be immersed in water for a few hours; then in ninety per cent. alcohol, and then in a weak solution of gum-arabic, which fills the interstices between the bundles, and finally in strong alcohol, ninety-five per cent., which hardens the gum sufficiently. The sections, cut as thin as possible, should be placed on a slide to remove the excess of alcohol, which may be done with filter paper. A drop of water is then to be added; about the cover put a few drops of carbolized water; remove to a damp place. At the end of twenty-four hours the gum will have dissolved, and then the glycerine may be allowed to enter slowly without displacing the elements (Ranvier).

In examining such cross-sections, the medullated nerves will present various diameters, and the contour of the myelinic sheath will vary in width and outline according as the cut comes through the broadest part of the arrow-marking, or through the thin overlapping parts. (*See* Fig. 1.) If the cut chances to pass close to the annular constriction, no myeline will of course be seen. For these reasons, the cross-sections of such nerves, when stained with osmic acid, are very different.

Modern Conceptions of Myelinic Nerves.—The specimens that have been studied according to the methods given will not have shown any termination in the nerves, or any division, either into trunks of any considerable size or into the fibrils of which they are said to be composed. They do, however, as we have already said, divide both near their origin and near their termination. It is presumed that each fibril of which the axis-cylinder is composed passes directly through from its point of

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Fig. 6.

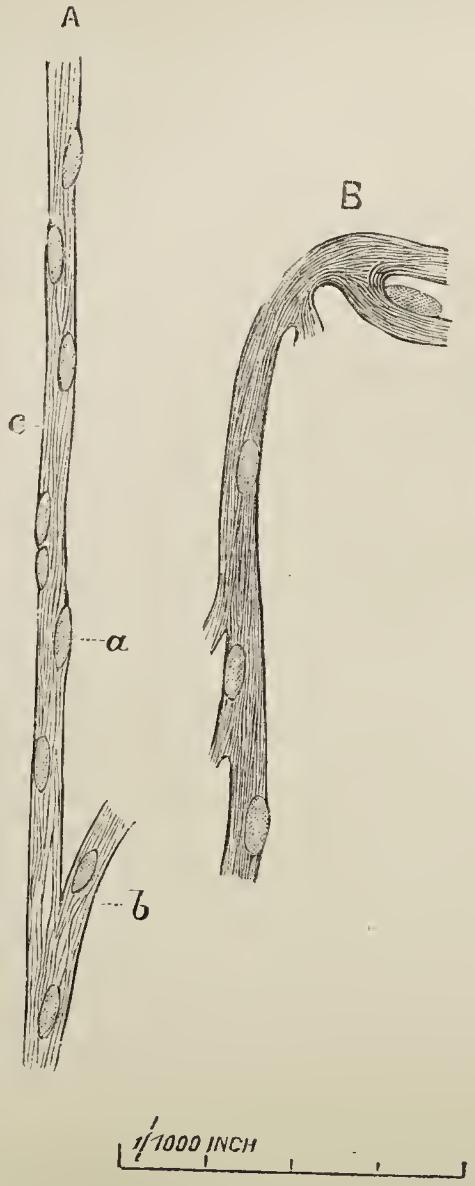

Fig. 7.

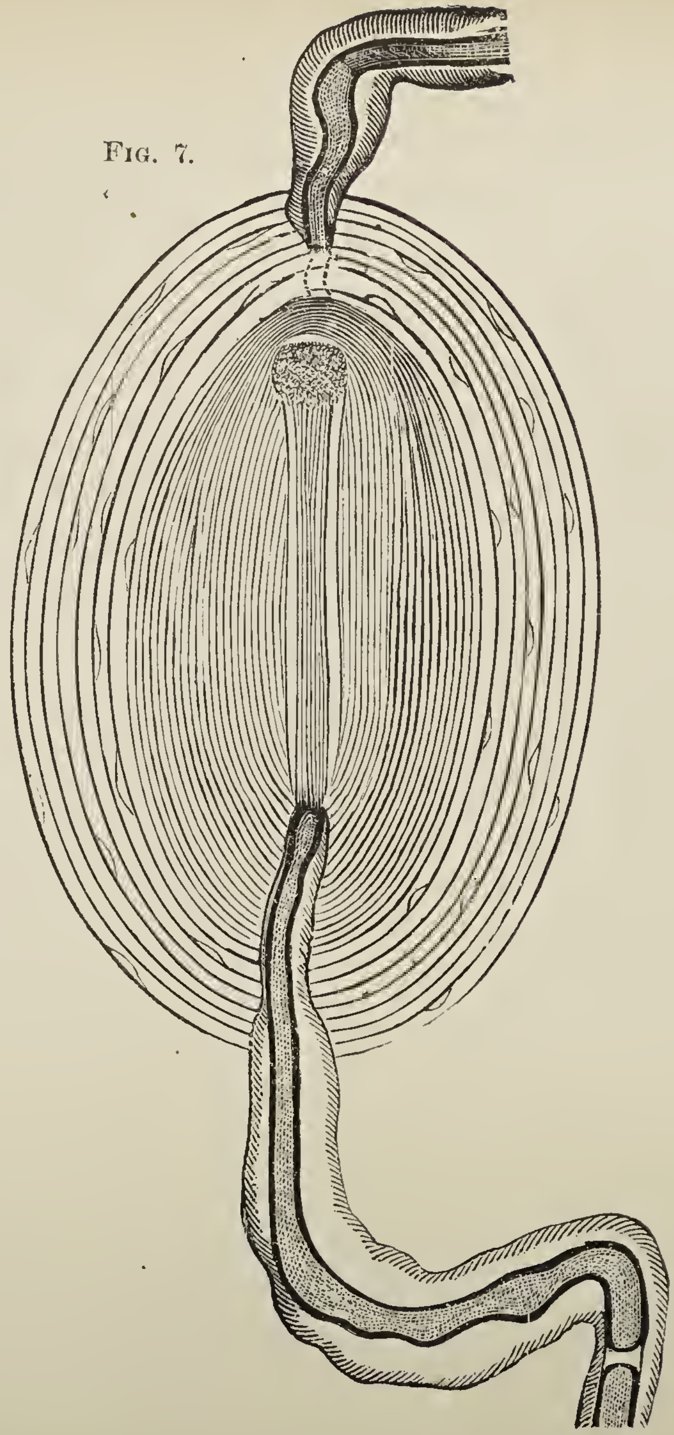

Fig. 8.

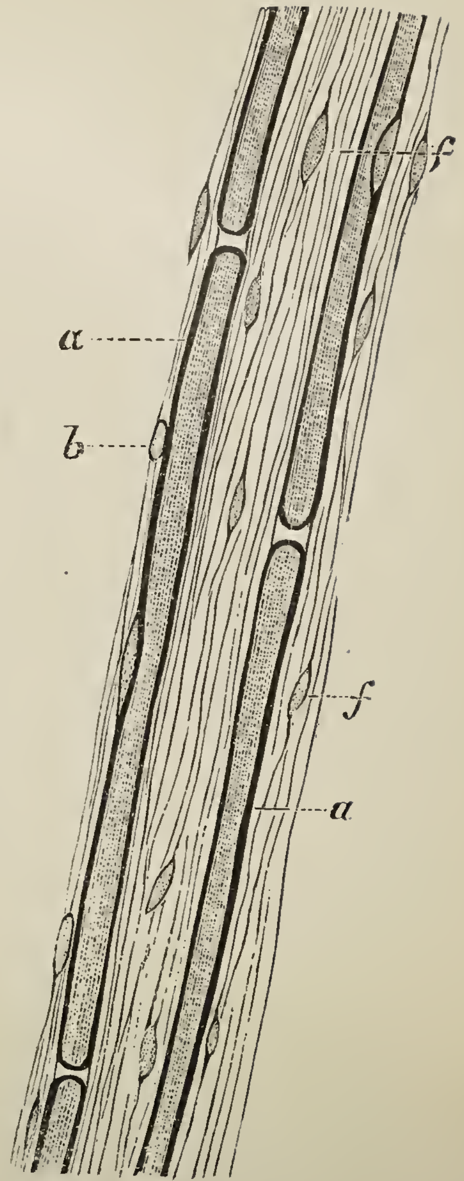

Fig. 6.—Fibres of Remak. *A*, Pneumogastric of the cat—Hæmatoxylin specimen: *a*, nerve nuclei; *b*, appearances of branching; *c*, connective-tissue sheath. *B*, Same. Picro-carmine specimen. The branching in this case is more evident. *C*, Same. Hæmatoxylin specimen. The necklace appearance is shown at *a*.

Fig. 7.—Pacinian Body from the Mesentery of the Cat.

Fig. 8.—Diagrammatic. *a*, Myelinic fibres; *b*, nucleus of Henle's sheath: *f*, nuclei of endothelium, or of connective-tissue corpuscles of sheath.

origin in the nerve-centres, to its final point of distribution, without branching. It is difficult, however, with the instruments in ordinary use, to see any distinct marks of fibrillation in cross-sections of the axis-cylinder, and it is in them that we should expect to see them best. Probably the ideas of Ranvier are the most precise of any of the recent writers. According to him, each section of nerve between the annular constrictions represents an ultimate morphological element. It is in fact a tubular cell, whose proper external portion (the membrane of the cell, according to common phraseology) is the sheath of Schwann, while the myeline or medulla fills the interior, just as in adipose tissue a globule of oil fills out and distends an ordinary connective-tissue corpuscle. Each of these bodies, which he calls an interannular segment, begins and ends at the constriction. It contains a single ovoid flattened nucleus, which fills a niche in the myeline, and is surrounded by a broad, thin expansion of protoplasm (the body of the corpuscle). The axis-cylinder has nothing to do with this body that we have described, except that it pierces it. Instead of stopping short at each constriction, it goes on indefinitely. As we have already seen, the annular constriction and the biconical disk are not always at the same point, which argues strongly for Ranvier's views. At the same time Engelmann insists that there is a break in the axis-cylinder at the annular constriction. The myelinic sheath probably protects the delicate fibre from external injury. Whether it also insulates it, is problematical. In the fœtus all nerves are devoid of myeline.

Fibres of Remak.—These are called by some the amyelinic or non-medullated fibres, by others the pale, gray, or gelatinous fibres. The term Remak's fibres has come into use recently as the distinctive name for certain nerve-fibres abounding in the sympathetic, as distinguished from others which also contain no myeline, and are found in the cranial portions of the optic, auditory, and olfactory nerves. Each fibre is marked with oval nuclei at pretty short intervals, and has an indistinct longitudinal striation, probably the evidence of fibrils such as are believed to exist in the axis cylinder. The nuclei are imbedded in a homogeneous sheath. There being no breaks in the continuity of the fibre, there can be no sheath of Schwann in the sense that has been described. In diameter they vary between $\frac{1}{250}$ and $\frac{1}{120}$ millimetre. In 1838 Remak first called attention to them, but his views were received with disfavor. More recently, Max Schultze, Frey, Leydig, and Henle have joined in representing them as long, cylindrical, continuous, slightly striated, and dotted with nuclei.

The fibres of Remak are found in great abundance in all the nerves of the organic system, but they also exist in all the mixed nerves, varying with the kind of nerve and the animal. They do not exist in special nerves. The pneumogastric of the cat is well adapted for the study of them, as the myelinic fibres are present in considerable quantity, and make the mechanical separation of the bundle easy. Associated with them are often seen fibres which are shown in Fig. 6, *c*. They are delicate, run a wavy course, and sometimes exhibit curious varicosities (*a*), (necklace appearance). The nuclei are placed at about the same distances apart as in the other form of fibre already mentioned.

Preparation in Osmic Acid and Picro-Carmine.—Remove from a cat that has just been killed the pneumogastric in the following way: Having exposed the nerve, slip under it *in situ* a long narrow strip of cork, to which pin down the nerve with some adjacent tissue, all of which may be removed at once and placed in a solution of osmic-acid (1–1000) for twenty-four hours; the nerve may then be separated from its attachments and placed in the picro-carmine solution for still another twenty-four hours. The excess of the coloring agent may be removed by dipping for a few seconds in acetic-acid solution (one fifth per cent.), and then the nerve may be placed in alcohol, afterward in water, and then mounted in glycerine It will be seen that the nerve fibres are stained a reddish-yellow, while the nuclei are brick-red. The picric-acid yellow is apt, however, to diffuse. Careful separation of the fibres may show that they branch, as shown in Fig. 6, *A*, *B*; and yet this characteristic, which Ranvier insists upon, is by no means easy to see in most of the fibres, in fact it requires much careful work before it is apparent. The myelinic nerves will be distinguished by their greater average size, their dusky, granular medulla, broken at points, and by the axis-cylinder, which, if it does not project, may be seen winding spirally along beneath its medullary coat. In them, too, as a rule each interannular segment contains but one nucleus.

Preparation of Remak's Fibres in Hæmatoxylin.—One of the most rapid and successful methods is by the use of hæmatoxylin. The pneumogastric nerve of a cat is removed and immediately placed in the hæmatoxylin solution,[1] then, after thorough staining, which may only take a few minutes, in dilute acetic acid one-half per cent., and then mounted in glycerine. In this way the nuclei will be stained a beautiful purple, while the fibres will be unaffected. The number of nuclei and absence of medulla will serve to distinguish the fibres of Remak from the medullated. It is difficult by any method of preparation to see that there are any precise limits to the longitudinal lines in the fibres, i. e., that the striation is due to little, short, narrow rods, lying side by side (Ranvier). The nitrate of silver demonstrates no transverse markings and no constrictions or crosses. There is but little likelihood in these specimens to mistake the fibres for connective-tissue bundles. In the first place, the nuclei, and what cell-bodies happen to be about them, of the one, are small, flattened, ovoid bodies occurring at pretty regular intervals, while the connective-tissue corpuscles are usually larger, longer, and, though they may appear oat-shaped when the side is turned to the observer, are broad plates with irregular edges when seen flat-wise. In the second place, the fibres run their course in long, narrow bundles, as no connective tissue does.

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[1] In 1876 I called attention to the great value of hæmatoxylin in studying connective substances. *On the Structure and Development of Connective Substances*, NEW YORK MEDICAL JOURNAL, July, 1876, and *Monthly Microscopical Journal*, Oct. 1, 1876. The formula then given was: Hæmatoxylini (pulv.) gr. lii, aluminis ℥ j, aquæ ℥ viij. Mix and strain. This solution answered well for showing the neuroglia after an immersion of twenty-four hours. The formula was much the same as had been recommended by Frey (*The Microscope*, 1872, etc., p. 158). I have, however, been in the habit of using it in a much more dilute form, by adding four times the amount of distilled water. This fluid should not be used at once, but be exposed to the sunlight for at least two weeks. It then is to be filtered, and is always to be filtered before using. An alcoholic preparation bearing my name, and put up by a leading pharmacist of the city, I have never used, and consequently have never recommended.

Ganglionic Bodies.—Of these there are three kinds: 1. Those that are connected with the spinal and some cerebral nerves. 2. Those found in the gray substance of the brain and spinal cord. 3. Those in the ganglia of the sympathetic system. These bodies are of such large size that they may often be seen with the naked eye. In the human species they are usually in close connection with the origin of the nerves, though they also may be interspersed at points through the course of the fibres or may be present near their points of distribution (ganglia of Auerbach). Their immediate connection with the nerve fibre is made in the following ways: 1. A large process, which does not at first appear to branch, passes off, and is continuous with the axis-cylinder. 2. Fine branches are given off from one or more corpuscles, and, uniting, contrive to form a nerve fibre (either a fibre of Remak or a myelinic fibre). 3. These branches after combination may pass through a ganglionic corpuscle, which then is called bipolar (Gerlach, Waldeyer). In the sympathetic system we have the unbranched process and the superficial or spiral fibre, which corresponds to the branched fibres of the ganglionic bodies of the brain and spinal nerves.

Ganglia of the Cranial and Spinal Nerves.—These organs, which appear to the naked eye as nodular enlargements of the nerves with which they are connected, consist of groups of peculiar large corpuscles which are interspersed among the nerve fibres. In shape they are usually large and ovoid, or pear-shaped. About and between them are bands of connective tissue studded with nuclei forming for each separate body a kind of capsule; the vascular supply to them is liberal. The contents of these bodies are soft, elastic, and beset with granules. They have a large, globular or ovoid nucleus or nucleolus, and may appear to have no process, or to be unipolar or bipolar, as in the lower animals.[1]

Examination of the Gasserian Ganglion in the Frog.—

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[1] According to Key and Retzius, they are probably all unipolar. *Stud. in der Anat. d. Nerven-Syst.*, 2 Hälfte, V. and H.'s *Jahresb.*, 1878.

Take a frog that has just been killed, or, better still, one that has been some time in Mueller's fluid; trace the fifth nerve into the skull. On it will be seen, just within the bone, a yellow enlargement. This is to be removed with forceps and teased with needles. The ganglionic bodies usually appear to have no processes (apolar), but they probably have one or more, and the apparent absence of them is because they have been torn off in teasing.

Examination of the Ganglia of the Spinal Cord.—Take the cord of a bullock and prepare it while fresh, or after it has been a greater or less time in Mueller's fluid, or a weak solution of the bichromate of potash (gr. xv–℥i). Having cut it into transverse segments, the gray substance may be easily seen. Snip out with fine curved scissors small pieces from the anterior horns in the lumbar regions where the corpuscles are very numerous; if the specimen be fresh, immerse in osmic acid (1–1000) for twenty-four hours. Then by careful brushing in water with the camel's-hair brush, or by teasing, or agitation in a test tube with a little distilled water, some of the ganglionic corpuscles will be successfully removed. They will be seen to vary much in size, and be multipolar, i. e., they will exhibit a very large number of branches (Deiters's protoplasmic processes) which divide and subdivide, and, it is said, form a network which unites with a similar one proceeding from the ganglionic bodies of the posterior roots.

There is, in addition, a single straight process (naked axis-cylinder), which, proceeding outward, soon receives a medullary sheath. The nucleus is very large and circular, and displays usually a nucleolus. The contents of the body of the corpuscles are more or less granular, and a mass of pigment in granules is usually seen piled up in some one portion. The corpuscles thus separated may be preserved in glycerine and water, or, after staining in borax carmine, in dammar varnish or Canada balsam. In the posterior horns the corpuscles are similar in character but smaller. Gerlach claims that the ganglionic bodies of the anterior horns are connected together through networks formed of the branching processes given off from each. Carrière, working under Prof. Kollman, of Munich, has examined the spinal cord of the calf in the fresh condition, and has satisfied himself that the ganglionic corpuscles are connected together by their fine processes, being thus in agreement with Stilling, Wagner, Remak, and many others.—*Arch. f. mikroskop. Anat.*, xiv., 2., 1877.

Ganglionic Bodies in the Human Brain.—Thin sections made through the cortex of the human brain show that there are conical ganglionic corpuscles of medium size, whose base is directed toward the white substance, and apex toward the superficies. From either end processes are given off, from the broad end several and from the apex a single one; both subsequently branch. In the upper strata the corpuscles are smallest. Disseminated throughout this substance are two other forms of corpuscles, one star-shaped (spider cells),[1] and the other the lymphoid corpuscles that belong to all tissues of the body. Possibly the spider cells which have a variable number of processes are the cells of the neuroglia. Brush cells[2] have also been described. Perhaps they should also be regarded as a variety of the spider cells.

Ganglionic Bodies of the Sympathetic System.—They occur either in groups, interspersed among the nerve-fibres, or are in lines, or single, or form enlargements in the nerve-plexuses, as in the digestive tract. Preparations of the cœliac ganglion of the frog may be made according to the methods that have already been described. The aorta and bulbus arteriosus of the frog are recommended by Klein. The gold method is the best in this case. It was in these corpuscles of the green tree-frog that Beale noticed a spiral fibre. It was a delicate one, winding round the axis cylinder, finally going off in an opposite direction. He also thought, from an examination of the ganglia in the mammalia, that the same fibre existed in them. Subsequently Julius Arnold corroborated his views, and even described a network of fibres which was connected with the nucleolus, and extended through the corpuscle, finally at its exit forming the spinal fibre. Recent observers, however, have failed to confirm Arnold's opinion, and even the existence of a spiral fibre is held to be in doubt.[1] These corpuscles, which are either globular or oblong, may appear to be apolar, unipolar, bipolar (when two processes are given off the opposite directions), or multipolar (when two are given off in the same direction, or several are given off in various directions).

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[1] Described by Jastrowitz.

[2] *Arch. f. mikrosk. Anat.*, 1874, LXI., p. 93.

Meissner's Plexus.—This network, named after its discoverer, is situated in the submucous tissue, and consists of nerve-bundles of medium size, which have nodular enlargements, studded with nuclei at certain points. An excellent way of securing them is the following: Take a piece of cat's intestine, three or four inches in length; cleanse it thoroughly by passing through it a stream of water; then ligate one extremity. Fill an ordinary two-ounce syringe with a solution of the chloride of gold ($\frac{1}{2}$°). Slip the nozzle into the other end of the intestine, and, tying it in, inject with such force as to distend the gut to its utmost extent without bursting. Then pass another ligature round the gut beyond the nozzle, and draw it tight. Remove the syringe, and place the specimen in an open vessel containing the same solution, but allowing fully one-half of it to be uncovered by the liquid. After twenty-four hours the part thus exposed will have taken a mauve or violet color. Then remove from the liquid, and open with scissors, let it partly dry, and, seizing the mucous membrane with the forceps, tear it off in pieces. The submucous tissue will then be exposed, and small bits are to be torn out in a similar way. They may be mounted in glycerine or dammar varnish. The nerve-trunks can be readily seen; they will contain, on an average, perhaps, from two to three fibres, and form a large-meshed plexus. The ganglionic enlargement may be found where three or four bundles meet, or in the course of a single bundle. The diameter of the enlargement is three to five times the size of the bundle.

Auerbach's Plexus, called after its discoverer, is seen by taking the same specimen, and tearing out thin laminæ from the muscle, at the junction of their longitudinal and transverse coats. The ganglionic bodies are nodular, and contain numerous nuclei. It is said that they may be isolated by immersion of the muscular tissue eight to ten days in a ten per cent. solution of common salt. Guinea-pigs furnish the best specimens.[1] There are both a coarse and fine network.

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[1] Key and Retzius did not find the spiral fibre in the human species, but in the frog occasionally. *Op. cit.* Many other excellent observers agree with them.

Termination of Nerves.—There are several ways that are recognized: 1. By terminal networks; 2. By end-bulbs; 3. By tactile corpuscles; 4. By Pacinian bodies; 5. By motorial plates. When nerves terminate by networks, the meshes may be formed from the medullated fibres, or those of Remak, and may consist of one or more fine fibrils. They have been found in the skin, and are to be seen in the submucous tissue of the intestines, in the cornea, and elsewhere. Termination by bulbs has been closely investigated by Krause. The bulbs are described as having a diameter of $\frac{1}{20}$ millimetre, are ovoid-shaped in man, with a thin capsule of connective tissue. One or more fibres appear to enter the bulb, and, penetrating some distance, end in a knob. They have been found in the conjunctiva, in the mucous membrane of the floor of the mouth, lips, soft palate, and tongue, and in the glans penis and clitoris. In the cavity of the mouth they are placed in the papillæ. The bodies Krause has observed in the clitoris are somewhat peculiar; they are variously shaped, and have a mulberry-like surface.

These corpuscles, about which there has been so much discussion and which some excellent observers (Waldeyer, Arnold) had failed to see, have been investigated recently by Longworth,[2] of Cincinnati, and their existence he regards as a matter of no doubt. He took the human eye, freshly removed with the conjunctiva, and made the examination immediately. Attaching the conjunctiva with threads, so that it preserved its its natural tension, he immersed it in a one-third per cent. solution of osmic acid, or exposed it to the vapor of the same solution. After twelve to twenty-four hours the membrane was deeply stained, and the epithelium could usually be removed with a brush or the finger-nail. Next a thin piece of cornea was removed and examined in water, or in one to two per cent. acetic-acid solution. It was then mounted in glycerine. This method is preferred to the gold chloride. In some conjunctivæ they are almost entirely absent; in others, or in certain portions, quite numerous. The entire interior is filled with nucleated corpuscles. Waldeyer, in commenting on the work of Dr. Longworth, agrees to it fully and retracts his former opinions. He places these bodies intermediate between the tactile and Pacinian bodies.

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[1] Frey, "Das Mikroskop." Leipzig, 1877.

[2] *Archiv für mikroskopische Anatomie*, Bd. ii., Hft. 4, 1875.

The tactile corpuscles of the skin (called also Meissner's or Wagner's corpuscles) are to be seen in the papillæ, and especially well in the tips of the fingers, and in the internal genitals. They have a length of about $\frac{1}{10}$ millimetre. Specimens hardened and preserved in the ordinary way show them well. They are oblong, rounded, and marked by transverse wavy lines. A nerve fibre may be seen running into their centre.

The Pacinian bodies, discovered by Vater, in 1741, but first carefully described by Pacini, of Pisa, are oval or pear-shaped bodies, attached to the nerves like berries to a stem. They are found in the subcutaneous tissues of the finger (Koelliker,) in the labia majora, prostate, corpora cavernosa, and in many other places. They are seen to the best advantage, however, in the mesentery of the cat, where they are so large as to be easily visible to the naked eye.

Cut out a small piece of the mesentery, place it in a weak solution of osmic acid (1–100), and after a few minutes, when it has become brown, separate the capsule carefully with needles. Mounting at once in glycerine, the whole interior of the Pacinian will be superbly shown, constituting one of the most beautiful specimens in histology. The medullated nerve may be seen winding at one end (Fig. 7), covered with a dense coating of connective tissue, and accompanied by a small artery. After penetrating a variable distance, it leaves its medulla and is continuous with a straight fibrillated band that is called the core. It terminates apparently in one or more granular expansions. In two cases I saw the nerve apparently passing through the body, giving off its medulla on entering it, and assuming it again on leaving.

This has been observed by Klein, Pappenheim, and others. Round about the core, forming a series of pretty regularly oval markings, are concentric tunics. Toward the periphery they are at a pretty even distance apart. Between them, applied closely to the tunics,[1] are small ovoid nuclei. The spaces between the lamellæ are probably filled with a clear fluid. In my experience these bodies are not successfully preserved in glycerine, even after hardening in osmic acid. The chloride of gold is recommended.

Nerve terminations in muscle are quite easily seen. It is only necessary to take a bit of muscle from the thigh of a frog just dead, and immerse it in dilute acetic acid, and then in glycerine. When the tissue is thoroughly transparent, as it will be in a few minutes (ten or fifteen), there will be little difficulty in finding first a medullated fibre, and then in tracing it into a muscle fibre. Reaching the sarcolemma it penetrates it at a prominence (Doyère's eminence). From this point it divides into fibrils which form delicate networks, and some one, or possibly two fibres will be seen to enter an irregular body placed in the centre of the fibre. This body is highly nucleated and may without much difficulty be distinguished from the muscle nucleus, which, however, usually lies on the bundle and not in it. This body is called the motorial plate, or terminal body. It is not certain, however, that the ultimate fibrils actually end there, for in some instances one is in connection with one side, and one with the other. Varicosities are described in the primitive fibrils when osmic acid or chloride of gold is used.

Gscheidlen,[2] of Breslau, one of the most recent writers on this subject, has traced (in the leech) the ultimate fibrils to the cement substance between the contractile muscle corpuscles (unstriped muscular tissue). He never saw them end in plates or in networks. Ganglion cells are closely attached to the fibres near their termination, and they may be unipolar, bipolar, or even multipolar, the former being the most numerous.

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[1] According to Shaefer the nuclei belong to epithelioid corpuscles which cover the tunic on both sides. "Practical Histology," p. 134. *Quarter. Microscop. Journ.*, 1875.

[2] *Archiv für Mikroskopische Anatomie*, xiv., 3, 1877.

Termination of nerves in epithelial bodies has been described by a good many observers. The demonstration of such ending, however, is extremely difficult.[1] The ultimate fibrils are liable to be confounded with elastic tissue, possibly with connective-tissue fibres. To be quite sure of their character they should be traced into connection with nerve trunks on the one hand, or ganglionic bodies on the other.

Connective Tissue of Nerves.—In our description we have adhered to the idea that the sheath of Schwann is the one that immediately incloses the medulla, without intervening substance. Ranvier has called the first sheath, exterior to Schwann's, "the sheath of Henle." Fig. 1, *e*.

The term *perineuriun* is often applied to the sheaths of the funiculus or bundle. The connective tissue separating the funiculi in a large trunk has been called *endoneuriun*, while *epineuriun* is the great sheath of the whole trunk. Each bundle or funiculus, the smallest element that we see in making a gross dissection of a nerve, is covered with one or more layers of endothelium, forming a special sheath. These funiculi do not run parallel without anastomosing, but two, joining, form a third, which again divides.

There is a practical difficulty in the way of giving precise limits to these sheaths, in the fact that they are apt to be continuous one with the other, while some one or more of them may be absent, depending upon the size or quality of the nerve. Such distinctions are therefore generally useless; and, in fact, our notions of these matters will alter as histological knowledge increases, and especially as we come to understand the minute anatomy of the lymphatics, which doubtless course in between the fibres.

Art. II.—*The Pneumogastric Nerve—a Study chiefly Physiological.* By W. W. Munson, M. D., Otisco, N. Y.

In view of the great advance in physiological knowledge during the past few years, and as many of us, in dealing with disease, come to neglect the body in health, I have ventured to offer a paper chiefly physiological.

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[1] *See* Cohnheim, Virchow's *Archiv*, Bd. 38, p. 343; and Krause, *Archiv für Mikroskopische Anatomie*, Bd. xii., Hft. 4, 1876.

The nerves originating in the spinal cord below the foramen magnum arise with great regularity by two roots—a motor and a sensory—which, immediately on emerging from the cord, unite to form a single trunk, capable both of conveying an impression from the parts to which it is distributed, to the place of origin, and of transmitting from the cord some power by means of which muscular action and other functions are produced. But the nerves which leave the upper part of the cord do not have this regularity of origin. For instance, a bundle of motor nerve fibres will pass directly from its origin to the place of distribution without connection with any sensory filaments, except so far as their terminal branches sparingly inosculate, as is the case with the motor nerves of the orbital muscles. In another case, two bundles—a sensory and a motor—pass from their origin together along the base of the brain, and out through the cranium before uniting, as in the case of the two roots of the fifth nerve.

For the subject of this paper I have selected one bundle of sensory nerve filaments, leaving the spinal cord just within the cranial cavity, and between two other nerves—one the glosso-pharyngeal, a sensory nerve, and the other the spinal accessory, a motor nerve.

This part of the spinal cord is the medulla oblongata, and the sensory trunk lying between the nerves referred to is the pneumogastric.

Until quite recently, it was supposed that this nerve arose solely from a collection of nerve-cells called "the nucleus of the pneumogastric," in the floor of the fourth ventricle, but it is now known that its deep origin is much more extensive, its filaments having been traced in several directions in the substance of the medulla. These filaments unite and emerge from the medulla just behind the olivary body, between the glosso-pharyngeal and the spinal accessory.

If the pneumogastric and spinal accessory were to be considered a single nerve, having for its sensory root the pneumogastric, and for its motor root the spinal accessory, it would much resemble the spinal nerves proper in its mode of origin, the ganglion on its sensory root, its emergence from the cranium, and its distribution.

So, also, the glosso-pharyngeal and the sublingual may properly, I think, be considered a single pair—one a nerve of sensation, the other a nerve of motion—both distributed to the same organ—the tongue. Anatomists do, by common consent, so consider the two parts of the fifth and of the seventh, and with no more reason than they may the spinal accessory and pneumogastric. It appears to me that the origin and distribution of the cranial nerve trunks constitute a much more rational and scientific basis of classification than the holes through which they emerge from the skull.

But to return from this digression : In the jugular foramen, through which the pneumogastric leaves the cranium, is a ganglion upon this nerve similar to the ganglia on the sensory roots of the spinal nerves. At this point the pneumogastric gives off a minute branch which, uniting with a small branch from the facial, and a few filaments from the glosso-pharyngeal, constitute what is known as Arnold's nerve, sometimes called the auricular branch of the pneumogastric, or of the facial, according as it is considered a branch of the one or of the other of these nerves. By a very circuitous route, this little nerve at length reaches the integument in front of the mastoid process, and is distributed to the external ear and membrana tympani.

This ganglion above referred to—the ganglion of the root of the pneumogastric—is connected with the first ganglion of the glosso-pharyngeal by a few filaments passing from one to the other. No other branches are given off from nor received by the pneumogastric so high up as the ganglion of the root, except occasionally a few filaments from the spinal accessory join the nerve at this point. These latter are not constant, however.

After the pneumogastric has passed from the cranium through the jugular foramen it presents another enlargement about an inch long. This can hardly be fairly called a ganglion, although it contains a few nerve cells. But it is called the *ganglion of the trunk.* Between these two ganglia, and at the lower one, the pneumogastric and the spinal accessory anastomose freely. In this region the pneumogastric also receives filaments from the sympathetic, the hypoglossal, and sometimes from the upper two cervicals.

From the upper portion of the ganglion of the trunk pass the *pharyngeal nerves.* These unite with branches of the glosso-pharyngeal and sympathetic to form the pharyngeal plexus. The pharyngeal motor filaments are all derived from the spinal accessory. The sensory pharyngeal branches from the pneumogastric proper have but little, if any, influence in the phenomena of deglutition, although a few filaments from the superior laryngeal partially animate the pharyngeal muscles.

The *superior laryngeal nerve* is given off from the pneumogastric at the ganglion of the trunk. This is the nerve of sensation to the mucous membrane of the larynx, epiglottis and base of the tongue, and supplies two muscles only, with motor influence, namely: the crico-thyroid and the inferior constrictor of the pharynx—the filaments to the pharynx, however, are few and unimportant. The superior laryngeals are of great importance in protecting the air-passages from foreign bodies, especially in the act of deglutition. It is the exclusive nerve of sensation to the mucous membrane of the epiglottis and the upper part of the larynx down as far as the true vocal cords. Thus we see, from the distribution of these sensory branches, that if the superior laryngeals are paralyzed or divided, a small quantity of food—especially if it be liquid—passed from the mouth through the faucial isthmus, across the base of the tongue, *is not felt by the epiglottis and top of the larynx;* therefore reflex closure of the glottis does not follow as in the natural act of deglutition, and portions of food are drawn into the larynx. I say "drawn into the larynx," for with the normal movements of deglutition there is always arrest of the action of the diaphragm; therefore inspiration is delayed. Now, if any substance be arrested in the pharynx, with the glottis open and the diaphragm in action, the air-passages are endangered. This was the condition of the cases of cerebro-spinal meningitis which I reported to the Onondaga

Medical Society in 1873.[1] The pneumogastric nerves were paralyzed from disturbance at their origin, and all the functions animated by the original filaments of these nerves were arrested.

The action of the superior laryngeals upon the crico-thyroid muscles resolves itself into the function of these muscles. Contraction of the crico-thyroids elevates the anterior segment of the cricoid cartilage—rocking it upon the thyroid—thus depressing the posterior portion, carrying the arytenoid cartilages along with it, and putting the vocal cords on the stretch. Now, if action of these muscles is destroyed, the voice becomes hoarse from relaxation of the vocal cords; and this is the effect upon the voice of division of the superior laryngeals. The source of these motor filaments of the superior laryngeals is unknown. They certainly are not derived from the spinal accessory.

The next branch of the pneumogastric in regular order is the *inferior, or recurrent, laryngeal nerve.* This nerve animates all the intrinsic muscles of the larynx except the crico-thyroid above mentioned, and presides over the movements of the larynx in phonation and respiration, but these movements are more or less independent of each other. The motor filaments of these nerves are all derived from the spinal accessory and other nerves. Division of the pneumogastrics at their roots does not affect the voice nor the respiratory movements of the larynx. Division of the spinal accessories at their roots abolishes the voice, but only impairs respiratory movements of the larynx, which latter movements are completely arrested by subsequent division of the inferior laryngeals—death following almost immediately in young animals—but in older ones the cartilages remain sufficiently rigid to prevent complete closure of the glottis, allowing inspiration, although paralysis of laryngeal muscles is complete, and death follows in a few days.

Of course, hyperæsthesia or irritation of the recurrent laryngeals produces spasm of muscles of larynx, therefore impaired respiration and phonation. A knowledge of the physiology of these nerves enables us to explain the relation of embarrassed respiration and imperfect use of the voice to pressure upon them of aneurismal or other tumors or foreign bodies in the chest or neck. Pressure only sufficient to irritate them produces spasm of the muscles of the larynx, with impaired respiration and phonation. Pressure or injury sufficient to destroy their function produces paralysis of laryngeal muscles—a more grave condition.

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[1] See *New York Medical Record*, January 15, 1874.

Sometimes the voice and respiration are impaired after the healing of deep burns or other injuries in the neck; these functions being unaffected immediately after the injury and during the process of repair. This is explained by the fact that tension is produced upon these nerves, or they become entangled in the cicatrix which involves tissues beyond the immediate injury.

If injury to these nerves or pressure upon them is sufficient to destroy their integrity or paralyze them, the destruction of voice and impairment of respiration will be constant; but, if only sufficient to produce hyperæsthesia, the voice and respiration are paroxysmally affected. This differentiation would seem to be of practical importance surgically, for if the nerve is intact it may be advisable to undertake to relieve it by operative means. I am not aware that this suggestion has ever been acted upon, and as far as I know it is new with me.

Laryngismus stridulus, that very harmless affection of children, for the cure of which many doctors receive, and a few claim, so much credit, is simply a reflex hyperæsthesia of these inferior laryngeal nerves, from indigestion, distension of the gums, worms, or other purely local cause, the removal of which relieves the spasm of the muscles of the larynx. Probably there never occurred a death from a single attack of uncomplicated *croup*, especially if let alone.

I find no report of injury of the pneumogastric or any of its branches, among the five thousand cases of gun-shot wound in the neck, not immediately fatal, during the war of the rebellion. This shows a remarkable immunity from injury of a large nerve with important branches, lying near the surface and in close proximity to, and intimate connection with, many organs necessary to life; or, it shows a degree of neglect among army surgeons, of the physiology of this nerve and its branches—especially when we remember the multitude of cases of aphonia, dyspnœa and dysphagia following wounds in this region.

The *cardiac branches* of the pneumogastric anastomose freely with the sympathetic, forming the cardiac plexus. The pneumogastrics proper have no influence upon the heart, but the motor filaments of this nerve derived from the spinal accessory regulate the action of this organ—section of the nerve in the neck increasing the rapidity of the cardiac pulsations, while galvanization of peripheral end of divided nerve stops them. Galvanization of central end of divided pneumogastric has no effect on the heart's action—showing that no impression is conveyed through the pneumogastric from the heart to cerebro-spinal nerve centres. So we may say that the action of the pneumogastrics upon the heart is inhibitory—regulating, controlling its action—and that this influence is conveyed through motor filaments derived from the spinal accessory. To give a rural illustration: when the great belt of a thrashing machine is thrown off, suddenly breaking the connection between the power and the thrasher, the revolutions of the cylinder are greatly increased for a time. On the other hand, if the belt is pressed upon while remaining in place, the cylinder is "slowed up." So, when the connection between the heart and the brain is broken by section of the pneumogastrics in the neck, the heart's action is suddenly increased for a time; but if, instead of cutting the nerve, it be galvanized (or, what amounts to the same thing, if the peripheral cut end be irritated), the heart's action is "slowed up." To continue the illustration, after the belt is thrown off from the machine we may apply any amount of power to the band wheel without affecting the cylinder; so, if the pneumogastrics are divided, galvanization of central ends does not affect the heart.

An interesting fact in this connection is that, after section of the pneumogastrics, the heart's action is not affected by the administration of digitalis; but, if the poison is injected into the veins before section, the cardiac pulsations are soon reduced in frequency—showing that the action of this drug is central, and not directly upon the heart as has been supposed.

As further proof that the action of the pneumogastrics upon the heart is exclusively through their motor filaments: in animals poisoned by woorara, which is known to completely paralyze the motor nerves, leaving the sensory nerves and muscular irritability intact, if the heart's action be kept up by artificial respiration, galvanization of both pneumogastrics has no effect upon its pulsations.

At this point it is proper to refer to a newly-discovered nerve derived from the pneumogastric high up in the neck—part coming from the superior laryngeal and part from the main trunk—and distributed to the heart. After division of this nerve, galvanization of the peripheral extremity produces no effect; but irritation of central end diminishes the blood pressure in all the large arterial trunks. It has been shown very clearly that this reduction of blood pressure does not depend upon a diminution of the number of cardiac pulsations, and that the reduction of pressure continued after division of both pneumogastrics, showing conclusively that their action is not direct, but reflex. Further experiments show that this reflex influence operating upon the heart is conveyed by filaments from the sympathetic.

On account of this peculiar influence upon the circulation, these nerves are called the *depressor nerves*. Further investigation will probably show that the inhibitory, regulating, controlling influence of the pneumogastrics upon the heart is the result of an impression conveyed to the medulla oblongata, through these depressor nerves—the action being reflex through the sympathetic. I am not aware that these branches have been found in man—all experiments thus far of which I have any knowledge having been made upon rabbits.

The movements of the *œsophagus* are animated by pneumogastric branches. That is, the third act of deglutition is performed through the reflex influence of these nerves. I do not mean to say that the œsophagus receives its motor filaments from the pneumogastric or from the spinal accessory. It is not known from what source they are derived, but it is through sensory filaments of the pneumogastric that an impression is conveyed to the medulla, and the motor influence is returned from the cord by some unknown route.

The *pulmonary plexuses* are made up of filaments of the pneumogastric and the sympathetic, which, in the lungs and bronchial tubes, are distributed to the mucous membrane only—not to the walls of the blood-vessels. The pulmonary mucous membrane derives its sensibility entirely from the pneumogastrics. On account of the great difficulty of reaching these branches, satisfactory results from direct experiment upon them are yet to be obtained. But we can go so far as to say that there is no reason to believe that the sensations of hunger, thirst, and want of air are transmitted through the pneumogastrics. The "*besoin de respirer*" is the demand of the whole system—not of the lungs—for oxygen; hunger is the demand of the system—not of the stomach—for food: thirst is the demand of the system—not of the throat—for liquids. These sensations are referred only subjectively to the organs, through which the different substances are introduced into the general system.

Right here is the place to say that the respiratory centre is not the pneumogastric centre. Respiration does not cease within several days after division of pneumogastrics at their roots—no sooner, in fact, than after section of the inferior laryngeals—motor filaments of the pneumogastrics derived from spinal accessories. But destruction of the gray matter of the lateral tracts, or intermediary fasciculi of the medulla, from which no fibres of the pneumogastrics originate, destroys the respiratory sense, and respiration ceases immediately. This is the "respiratory centre," the "vital point," the "vital knot." The idea, so long entertained, that the integrity of the pneumogastrics is necessary to life, must be abandoned. Dr. Hammond, so lately as December 6, 1875, in discussing, before the New York Neurological Society, the cause of death of Vice-President Wilson, and in referring to occasional sudden death from anæmia of "that small mass of gray matter which constitutes the nib of the calamus scriptorius, and the perfect integrity of which is necessary to life," said: "The functions of the pneumogastric nerves are at once arrested, and respiration and circulation instantaneously stopped." This statement of so distinguished an authority upon all questions connected with the nervous system is unaccountable, when it had been abundantly proven by repeated experiments before 1875 that *neither respiration nor circulation is instantaneously stopped by arrest of the functions of the pneumogastric nerves.* So, also, are we compelled to criticise the statement in his work on "Diseases of the Nervous System," that death sometimes takes place in glosso-labio-pharyngeal paralysis from sudden stoppage of the heart's action on account of implication of the pneumogastrics, when we know very well that the heart's action is *not* stopped by destruction of the pneumogastrics, root and branch. Many such instances might be adduced to show how we may be led astray in pathology by not having a correct starting-point in physiology.

Some observers believe that the bronchial spasm of asthma and pertussis are the result of irritation of the pulmonary filaments of the pneumogastrics; but, as no *facts* have been developed to give such a belief anything like a firm foundation, I have not thought best to devote any time to it.

Movements of the *stomach* are nearly arrested by section of the pneumogastrics. Secretion of gastric juice, and therefore the process of digestion, ceases, apparently, from arrest of muscular action of the stomach.

All that is known of the action of the pneumogastrics upon the *liver* is that its glycogenic function is performed by an impression conveyed by these nerves to the medulla oblongata, and reflected back through some other nerves—probably the sympathetic—although it is not easy to understand how an impression can be conveyed from an organ to a cerebro-spinal centre, to be reflected back to that organ through the sympathetic, the centres of which are connected with the former only through nerve filaments, unless we accept the view (which seems to be gaining ground) that the functional activity of the organic ganglia, although nerve-centres, depends upon influence derived from the cerebro-spinal centres.

It is now quite generally known that irritation of the central end of the divided pneumogastric, or of its origin in the medulla, produces temporary diabetes.

As isolation of the heart from the cerebro-spinal system, by section of the pneumogastrics, prevents the action of digitalis upon that organ, so the most active purgatives do not produce catharsis after section of these nerves, "even when given in doses large enough to cause death" (Flint). Not that the peristaltic action of the intestines is produced by the direct action of the pneumogastric; but the impression, the stimulus, the irritation, is conveyed through this nerve to the spinal cord, which originates the motor influence conveyed to the bowel by some unknown nerve—probably the sympathetic.

The intestines receive no branches from the left pneumogastric. The right only is distributed to the bowel.

The only other organs to which the pneumogastric is distributed are the spleen, kidneys, and supra-renal capsules; but nothing is known of its action upon them.

ART. III.—*Hard-Rubber Appliance for Congenital Cleft Palate.* By THOMAS BRIAN GUNNING.

ALEXANDER PETRONIUS, in his work entitled "De Margo Gallico," and Ambrose Paré, in his book on surgery, prove that efforts to relieve those suffering from defective palate, by applying obturators, were made over three centuries ago, and the records of the last fifty years alone show that the endeavors to supplement the congenital cleft palate have resulted in the invention of mechanical appliances which in number and variety are very remarkable; yet the "Report of the International Exhibition of 1876," in referring to the one now submitted, says: "This contrivance is a very marked improvement over all previous appliances to this distressing malformation." Now, that this simple remedy was not devised earlier is owing to mistaken views as to the movement of the muscles of the pharynx and palate, both in perfect and malformed conditions, and this, notwithstanding the investigation and study of these parts by the most distinguished physiologists and surgeons.

These mistakes will be pointed out in this paper, but the literature of this malformation is already so full, especially with the recent volume on "Harelip and Cleft Palate," by

Mr. Francis Mason, F. R. C. S.,[1] that it is not necessary to notice all varieties of congenital cleft palate, nor need attention be given to the causes of this incomplete development in fœtal structure.

Normal conditions will be considered first.

The *constrictor muscles* of the pharynx are said to be *inserted* into the posterior median raphe, which lies against the vertebral column, whereas they *arise* on that line; that is, they are fixed at this centre of the back of the pharynx, by which the inferior and middle constrictors, in deglutition, *relax* to allow the larynx and its support—the hyoid bone—to pass forward and open the way to the œsophagus.

The *superior constrictors*, which may be seen from the front of the mouth, after reaching the upper end of the raphe, are also prolonged by a fibrous aponeurosis to the basilar process of the occipital bone. They are thus firmly held up as well as back. These muscles, which form the upper part of the pharynx, pass off on each side to their insertions on the *pterygo-maxillary* ligament, etc. They thus inclose the tonsils, and the insertions of the muscles which arch down from the uvula.

The *superior constrictor* muscles, while thus firmly held at the back of the pharynx, and also at their terminations in front, where they join the attachment of the buccinators, which they resemble, are quite important, for they contract the fauces laterally and draw the tonsils and neighboring parts in, or let them out, as necessary.

The hard palate gives support along its back margin to the velum or soft palate, which is seen curving downward and ending at the uvula, which gives insertion to a pair of small muscles—the *azygos uvulæ*—which arise on the spine of the palate bone, and pass along the front of the velum.

The *levator palati* muscle comes forward and inward on each side over the concave border of the *superior constrictor* muscle, and spreads out in the upper surface of the velum, back of the aponeurosis of the *tensor palati*, which last comes down around the hamular process, and spreads out its aponeurosis to the centre of the velum and to the palate bone. The *tensores palati* make the velum tense; the *levatores palati* pull it up and back to shut off the nose, and the *azygos uvulæ* muscles antagonize them.

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[1] J. & A. Churchill, London, 1877.

The uvula is also the centre of two distinct arches, formed by two pairs of muscles, which are separated below by the tonsils. The anterior arch is formed by the *palato-glossi* muscles, which are inserted into the sides of the tongue. The posterior arch is formed by the *palato-pharyngei* muscles, which go down, one on each side, their anterior fibres being inserted into the thyroid cartilage, while others pass around the sides and back of the pharynx.

In deglutition the pillars of this arch swing around upon the surface of the *superior constrictors* with great rapidity, and come together behind, the *tensores palati* muscles and *palato-glossi* acting in concert to form the arched band which shuts down against the tongue to keep the food back. The *palato-pharyngei* then act in concert with the *azygos uvulæ*, to press the food down the pharynx.

The *palato-pharyngei* are not associated with the palato-glossi in constricting the isthmus of the fauces, nor does the *superior constrictor* act in deglutition, as supposed, its attachments making it impossible that it can press the food down the pharynx.

The form of the hard palate is such that the tongue can fit it around the inside of the teeth, as in the consonant *t*. The back of the tongue also fits against the soft palate and uvula exactly, and this closure can be maintained while the upper part of the soft palate shuts off the posterior nares. This is easily tested by pronouncing the consonant *k*, in which both the nose and mouth are shut off from the larynx, until the tongue leaves the palate to allow the vowel sound to come out, when only the passage to the nose is kept shut. This double closure is made even in *kee*, in which sound the contact for *k* is on the hard palate, instead of being back on the soft palate as in *koo*. The point of the tongue goes up in *t*, the back of the tongue in *k*, and the lower lip also goes up to form *p*, the upper lip and the hard palate being passive, and the soft palate nearly so, outside of its great function in respect to voice, which is to shut off the nose cavity in all sounds of speech and song except those containing *m* or *n*. At rest, the velum leaves the passage from the nose to the larynx open.

The malformed palate will now be spoken of.

Congenital cleft may be limited to the uvula, or to the front of the hard palate, or it may occupy any part of or extend through both soft and hard palate, involving the front teeth and alveolar process up into the nostrils. In nearly all cases the soft palate is seen on each side. The back of the pharynx is exposed, and appears comparatively wide and flat, although each corner holds a vertical column of tissue, which in deglutition pass rapidly toward the centre of the pharynx along the surface of the constrictors, which are seen to draw strongly across; while the horizontal remnants of the soft palate at the same time narrow the mesial gap. These vertical columns are the posterior pillars of the soft palate, which being ununited are drawn up by the *levator palati* of each side; but the anterior fibres of these pillars, which go to the thyroid cartilage, are seen in place against the tonsils. Each half of the uvula is drawn slightly up by a slip which comes from the *levator*, but it draws very feebly upward, the parts, except in deglutition, tending toward the sides more than up and back. Mr. Fergusson's report of a dissection, made by him, of a cleft palate in 1844, states distinctly that the *superior constrictor* was very full, and he also claimed for the muscle very decided forward action in deglutition; and his statement has hitherto been accepted almost without question.

The back of the pharynx is, however, in full view when the soft palate is cleft, and more especially so when the opening extends through the hard palate, but I have never seen any special action in the *superior constrictor*, beyond that shown in normal conditions. In 1864 I had become convinced that the *superior constrictor* was incapable of any action which could prevent the use of a rigid appliance to supplement the cleft soft palate, and to the present time in no case has the hard-rubber palate failed to keep its place, to give entire satisfaction, and to improve the speech in a remarkable degree.

It is but justice to note that, judging from Mr. Mason's able work already referred to (p. 93), Sir William Fergusson's riper experience led to conclusions respecting the *superior constrictor* which are in accord with my own views, rather than with those expressed in his report of 1844.

Therefore, in brief, in view of the foregoing propositions: There being no forward action whatever of the superior constrictor muscles, a rigid plate can be worn without intermission, not only in comfort, but with improved condition of the mucous membrane, which is covered in, and of the general health, the nose being as free for breathing as in a normal condition of the parts; while the plate also enables the wearer to utilize the muscles of the cleft velum. The palate is easily made, and being of hard rubber does not deteriorate in the mouth. It is not supported by any part of the cleft, and may thus be worn from early childhood without injury to the parts, in fact its support may even lessen the cleft.

The plate, which is held up by the teeth against the hard roof of the mouth, extends up into the cleft and thence to the back of the pharynx near the tubercle of the atlas, the end being rounded to allow the sides of the pharynx to close in during the act of swallowing. This extension into the cleft being spread out over the soft parts on each side, the ununited muscles draw up against it and close off the nasal cavity. The vowel sounds are therefore preserved from the resonance of the nose by the natural action of the muscles, while the nasal sounds are used when necessary, and the tongue is able to form all the lingual consonants, the stiffness of the hard rubber affording the best possible substitute for the muscular firmness of the natural soft palate. To apply this palate, a simple impression of the hard palate and teeth, as is usually taken for the setting of artificial teeth, is quite sufficient, the extension into the soft palate being made by fitting the gutta-percha pattern to the parts without subjecting the patient to the annoyance of obtaining a plaster impression of these sensitive and mobile organs. This palate is consequently so simple that any accomplished dentist can apply it, and the patient is therefore comparatively independent.

Early use of this artificial palate prevents unnatural action of the tongue, such as attempts to close the cleft with the tongue when the latter should be free to act in articulation, whether in speaking or singing.

Fig. 1 gives the upper side view of an appliance for a case in which the cleft passes through the whole length of the soft palate, but does not reach the front teeth.

Fig. 1.

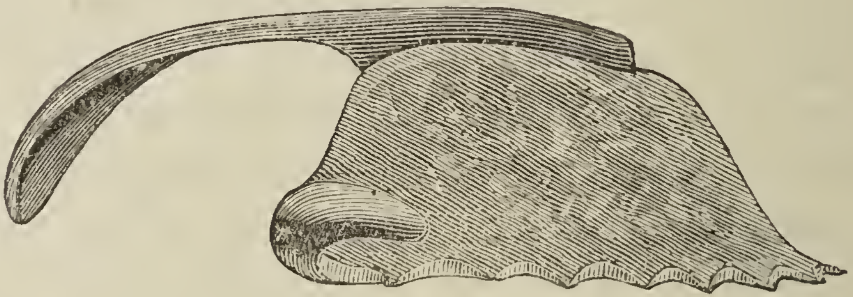


Fig. 2 gives the lower front view of the plate shown in Fig. 1; when worn, the narrow part is covered on each side by the cleft soft palate, as in Fig. 4.

Fig. 2.

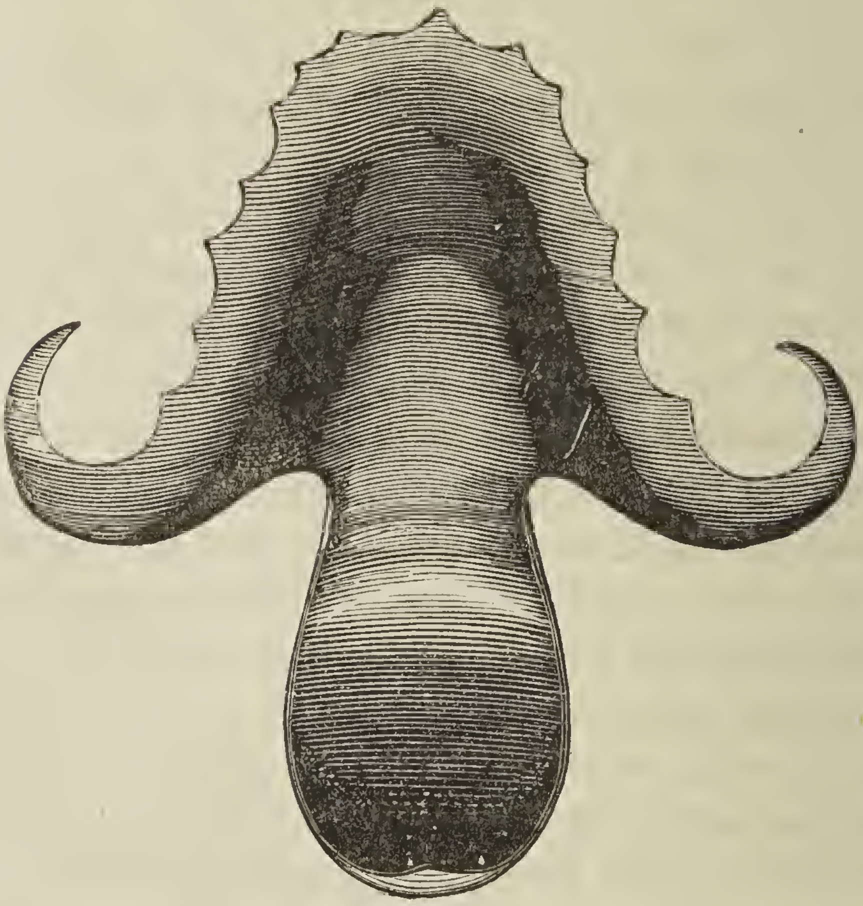


Fig. 3 was taken from the cast of a large cleft through both the hard and soft palate, in a patient twenty years old. The cleft in her lip had been closed in infancy ; and attempts were made to close the soft palate after the cast was taken, but the parts did not unite. The case is peculiar in the absence of the bicuspid teeth and the *central* incisor, there being only an irregularly-formed tooth on the mesial side of the canine instead of two incisors.

FIG. 3

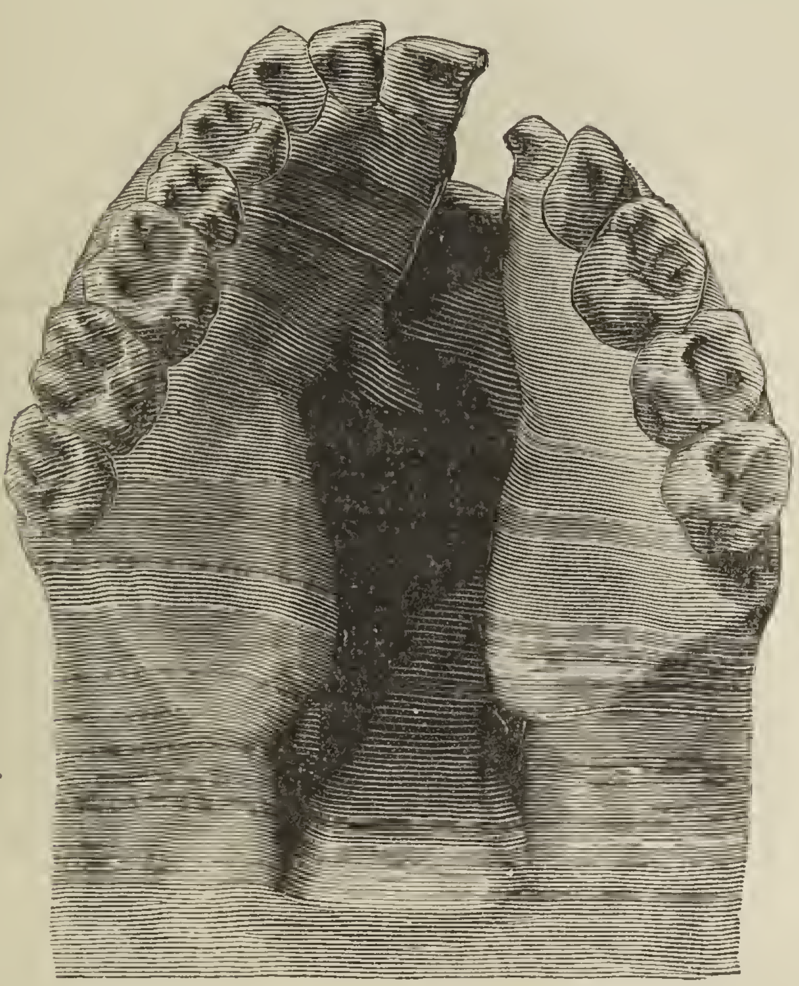
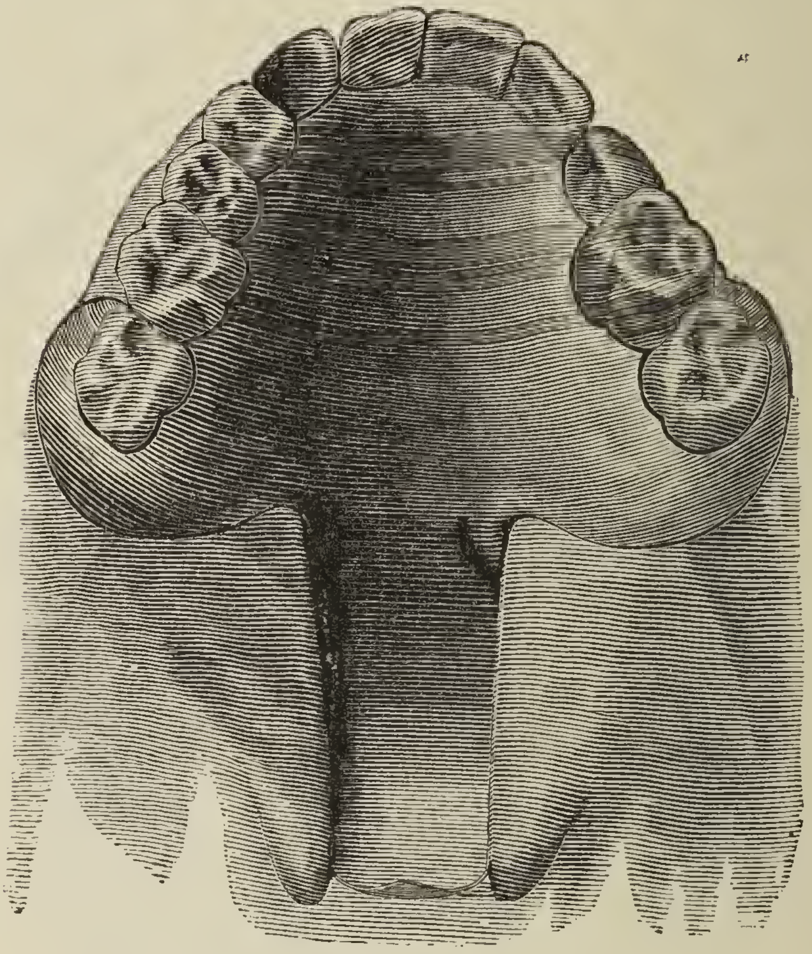


Fig. 4 shows the hard-rubber appliance as adjusted to remedy the deformity exhibited in Fig. 3, after the wisdom-teeth and the right central had been lost through decay and the malformed tooth removed.

The cut was made from an impression of the plate *in situ* after it had been worn more than four years, day and night.

Deglutition is not interfered with by cleft of the palate in adults so much as articulation or speech. It was, however, necessary to explain the movements in the pharynx and soft palate in swallowing, in order to prove that they do not interfere with a rigid but properly-fitted appliance. Having shown that the constrictor muscles do not close upon the food, but that they relax to let the hyoid bone and larynx go forward, and as these views are opposed to what is laid down, it is proper to show how the food gets into the stomach.

FIG. 4.



Liquids especially are drawn into the pharynx by suction, and also pressed back by the tongue; for solid food the pressure is proportionally increased. When the food has passed into the upper part of the pharynx, it is shut in by a band or welt, consisting of the forward portion of the soft palate, continued down the sides, by the anterior pillars. The upper portion is formed by the action of the *tensores palati* muscles drawing their aponeuroses tight, and the *palato-glossi* coming into action, and continuing the curve down on each side of the tongue, at the same time assisting to draw the latter up against this arched band, or welt, by which the food is kept back.

It should be understood that the upper part of this welt is formed by the aponeuroses, at some distance in *front* of the *uvula*, so that the part of the soft palate behind the welt is left free. Through the middle of this, the *azygos uvulæ* muscles pass to the uvula, in the centre of the back border or arch formed by the *palato-pharyngeus* curving down on each side, and known as the posterior pillars of the soft palate. These two pairs of muscles are now inactive, as the *levatores palati* have drawn the soft palate up behind, and closed the passage to the posterior nares, while the food is shut in at the front, as before described. At the instant this is accomplished the *palato-pharyngei* act, and come together behind; the *levatores palati* relax, and the *azygos uvulæ* muscles come strongly into action, and draw the uvula and the origins of the *palato-pharyngei* rapidly forward.

The *azygos uvulæ* muscles, which pass from the spine of the hard palate to the uvula, are at this time held *down* to the tongue by the welt or band formed by the aponeuroses before mentioned, consequently they now in acting draw the origins of the *palato-pharyngei* forward, and down to the tongue; and as the insertions of these muscles extend down around the sides and back of the pharynx (crossing each other behind), they, in acting at this time, form a circular layer of muscular fibres, which converge from the circumference of the sides, and back of the pharynx, across to the insertion of the *azygos uvulæ* muscles. At this moment the muscles which arise on the inside of the chin draw the hyoid bone forcibly, the back part of the tongue is carried forward, and closes down over the epiglottis until the food falls into the œsophagus, the downward progress of the food being facilitated by the pressure of the atmosphere, which is let in by the drawing of the *azygos uvulæ* and the relaxation of the *levatores palati* muscles, while the muscles of the trunk coöperate, and the food enters the stomach. It is shown that the *tensores palati* muscles and the *palato-glossi* act in concert to form the arched band which shuts down against the tongue, and that the *palato-pharyngei* are not associated with the *palato-glossi* in constricting the isthmus of the fauces.

The foregoing explanations show that every muscle of the soft palate is active in deglutition, and that the food is effectually controlled without unreasonable action on the part of any muscle such as that generally imputed to the superior constrictor, which cannot act in deglutition, as supposed, its attachments making it impossible that it can press the food down the pharynx.

ART. IV.—*Supra-pubic Lithotomy.* By C. W. DULLES, M. D., Philadelphia, Pa.

IN a recent number of an American medical journal was an article upon median lithotomy, which contained the following sentence in regard to certain other methods: "The super-pubic cutting on the gripe and rectal have all been assigned to well-deserved oblivion, being preëminently unscientific and without advocates in this enlightened age."

It is not to criticise too sharply the sweeping statement quoted that this article is undertaken, but because the evident misapprehension in regard to the merits and status of one of the methods alluded to is not so rare as might be wished that I desire to make a few comments for the benefit of any who have not access to a better source of information. This desire is the natural outcome of an interest in supra-pubic lithotomy (which is no doubt meant by the term "super-pubic") that has grown with prolonged study of its history, and the investigation and analysis of more than five hundred cases. These—it may be said by way of explanation—have been gathered by examining the original records in very many works on surgery, and more than three thousand volumes of medical journals—English, German, French, and Italian—and an extensive correspondence.

It is not within the scope of this paper to present a detailed statement of the arguments in favor of the general adoption of this method of lithotomy; these may be found, by any one desiring to look the matter up, pretty fully stated in an article on supra-pubic lithotomy in *The American Journal of the Medical Sciences*, for July, 1875, and another in the number for April, 1878. But a few points may be here touched upon, in the hope that their consideration will prevent such hasty generalizations as have called them out in this instance.

And, first, in regard to the merits of supra-pubic lithotomy. So far from being "preëminently unscientific," this method has more to recommend it upon purely anatomical grounds than any other, being, when properly carried out, exceedingly simple, easy of execution, free from hazardous complications, and unlikely to be followed by grave consecutive lesions. But this presupposes—what is not so common as might be imagined—an accurate acquaintance with the anatomy of the parts, and the best way of operating. It implies the correction of some wide-spread erroneous impressions in regard to the relation of the peritonæum to the bladder and the abdominal walls, in regard to the necessity of distending the bladder by injection, and in regard to the requirements to secure suitable drainage after the operation; erroneous impressions which may be found even in some of the most recent writings upon this subject.

The operation in its simplest form is conducted as follows: the skin just above the pubes and over the linea alba is incised to the extent of a few inches, and an easy dissection brings one down to the region of the bladder. This is now pushed up on the end of a sound, passed through the urethra, and secured with a tenaculum. It is then incised to a proper extent and the calculus removed with fingers or forceps. After which the wound should be covered with a light absorbent and stimulating dressing, the patient put to bed, and the subsequent treatment conducted on general principles.

The question may suggest itself to the reader, as it has often been asked of the writer: "But how does one avoid cutting the peritoneum?" To this there can be but one brief answer: "Exactly as one avoids cutting the carotid in operations on the neck; that is, by knowing where it is, and keeping it out of harm's way." Just here is seen the need for *accurate* anatomical knowledge. This would prevent the groundless fear that there is great danger to the peritonæum in this operation. As is said in Holmes's "Surgery," "the wounding of the peritonæum must be regarded as a failure in anatomical manipulation;" and it may be asserted without hesitation that the properly-informed surgeon need have little apprehension of so rare an accident. It has occurred, in five hundred and fifteen cases, only fourteen times, nine of which were before the days of anæsthetics, two of the remaining five were through carelessness; and, with all, only four of the patients died.

From this it must not be imagined that the surgeon can act as if there were no peritonæum. That has been the cause of most of the accidents. Though he should not have needless dread, he should use proper caution. The peritonæum may be encountered; it should be looked for, and, if met, gently pressed out of the way.

Another question which is often asked is: "Does not the bladder have to be distended with an injection?" To this the answer—briefer than that to the former question—is, "*No!*" The simplest, and a perfectly satisfactory way to fix it for incision, is to raise it up from within, on the end of a sound, and secure it with a tenaculum. Let any one try this on the cadaver, and he will see how easy a matter it is.[1]

Then, in regard to the treatment of the wound: this may be as simple as described above, having good assurance of success, founded upon the result of cases that have been thus treated. So, too, of abstaining from any interference in the subsequent drainage of urine and discharges. There are plenty of cases to demonstrate that Nature is quite competent, in ordinary, to take care of these, and I happen to have just received accounts of two operations, done by Dr. Bahnson, of Salem, North Carolina, where he used no sutures and no catheter after the operation, letting Nature take her own course, with the result of recovery in one case in sixteen, in the other in eighteen days.

I have thus described what I believe to be the simplest method of performing this operation; but, at the same time, I think the safety of the patient would be much more assured by the adoption of certain modifications, which have been elsewhere suggested.[2]

And now let us look at the dangers which have been supposed to constitute the great obstacle to the general adoption of the supra-pubic operation. These are two—peritonitis and urinary infiltration, which are over and over again said to constitute hazards to which the surgeon should not subject his patient. Yet, that they are really to be dreaded, as one might suppose by such warnings, is utterly unsupported by facts; more than this, it is overwhelmingly disproved by facts. As is said in Pitha and Billroth's "Handbuch der Chirurgie"

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[1] It would be well for any one who thinks of employing this method to practise it, if possible, on the cadaver first.

[2] *American Journal of Medical Sciences*, April, 1878, p. 397.

(Bd. III., 2^{te} Abth., Seite 111): "From all this it is seen that, in general, the pretended danger of urinary infiltration can of itself furnish no contraindication at all to supra-pubic lithotomy." And, again: "Though further it was insisted that in supra-pubic lithotomy the peritonæum was more imperiled than in any other method, yet this danger also was unreasonably exaggerated."

It may be objected to all this, that nevertheless the books give the mortality after supra-pubic as much higher than after lateral lithotomy. True enough; but that is a superficial judgment which rests upon this aspect of the case alone. One must go deeper to get at a correct estimate of this or any other operation. If this be done, we see that supra-pubic lithotomy has labored under the greatest disadvantages. It has been neglected in teaching and in practice, it has been avoided in the best cases, and had recourse to only in the most desperate and hopeless. The subject has been surrounded with, it must be plainly said, ignorance and prejudice; not ill-will, of course, but just what these words mean, want of correct information and preconceived judgments. In this way it has been employed, amid the host of stone cases, say, five or six hundred times, of which we have now access to only about five hundred, on analyzing which we discover that they comprise those where one would least expect success; operations done upon the oldest patients, for the largest calculi, and often when an immediately previous attempt at perineal lithotomy had failed. Indeed, its disadvantages have been very like those under which tracheotomy labors at the present day. Yet, with all this, the results, taking all cases together, have been almost half as good as the highly-favored lateral method, and for large calculi much better.

If, then, these results have been, *under the circumstances*, so good, and if the fact that they have not been better is attributable, not to anything in the method itself, but to its circumstances, it may well be demanded of one who advocates it to show that under more favorable circumstances it may be expected to compare well with other methods. This can, I believe, be shown quite conclusively.

There is, in *The American Journal of the Medical Sciences*, for April, 1878 (p. 400), a table containing the cases of supra-pubic lithotomy occurring during the past ten years then known to me, to which may be now added three more which have since come to hand. On looking over these we find, of the entire twenty-three, but two were followed by a fatal result, in neither of which can it be charged to the method itself. And, even if it could, we would still have a death ratio of one in eleven and a half, which is much better than the average in lateral lithotomy, according to the most recent statistics: a showing as good as the most strenuous opposers of supra-pubic lithotomy could demand, or its most ardent advocates—for it is not "without advocates in this enlightened age"—could desire.

It may be asked: "If this be all true, why is the general opinion so unfavorable to the method?" It is plain enough to one who has had opportunity to study the subject carefully. As far back as the time of Cheselden carelessness and unjustifiable violence led to accidents which horrified those who would otherwise have adopted and perfected it. Coming down the line of history we find that it was not freed from the trammels of ignorance and rudeness until the present century was well on its way, and lateral lithotomy had secured an almost impregnable position. There was, then, ground enough for the early warnings against it as a dangerous method, and there can be but little wonder that these were repeated from author to author, without any material modification. So far there can be little objection to this course, for there was nothing to stand against it. But there is no reason, and there is no right, in a continuance of the old way of treating the subject now. It will no longer do for surgical writers, however distinguished in general, to repeat without scrutiny the old charges against supra-pubic lithotomy, and add the weight of their authority to errors in regard to a method of which they have had no personal experience, and, perhaps, no opportunity for observation or investigation.

As an evidence of the appropriateness of such remarks, let it be noted that until very recently English and American writers have known no better basis for their opinions than the hastily collated and imperfect table of one hundred and four cases which Humphrey published in 1850,[1] being apparently entirely unaware of the existence of a masterly monograph by Günther, of Leipzig, published the very next year, and containing a history and careful analysis of two hundred and sixty cases.[2] The latter was, of course, accessible to German surgeons, and consequently we find they have a very different estimate of this method from that of our English-speaking brethren, with their meagre supply of facts. One will get no idea from Bruns, Roser, Bardeleben, Langenbeck, or Pitha and Billroth that this operation is "preëminently unscientific." Their views, founded upon Günther's two hundred and sixty cases, are amply sustained by examination of the five hundred and fifteen upon which the present article rests. Indeed, nothing is more evident, in going over the history of the operation, than that the conviction of its value has ever been in direct ratio to the extent and thoroughness of the research of each investigator.

It is not surprising, then, that, as correct data are presented to the world, we find the interest in it growing and spreading. The investigations of the writer, and the kindness with which his previous requests for communication of facts in regard to this method have been treated, place him in a position to state that supra-pubic lithotomy is at present very far from a "well-deserved oblivion." It commands more attention and has more friends and advocates now—in this country especially, but also in Europe—than ever since the days of Douglas, Cheselden, Côsme, and Souberbielle.

It is hardly likely to be adopted by men whose early education has led them to regard it as only to be chosen in cases when no other method can be employed, and whose subsequent career leads them to be so satisfied with the lateral operation as to desire no change; but there are not a few who, under the more recent presentation of the subject, are coming to see that it offers possibilities far better than has been heretofore believed, and will not hesitate to give it trial as occasion offers. Some have already done so, and without exception been thereby more satisfied than before that the method should be assigned a position *at least* equal to that of any other.

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[1] G. M. Humphrey, "A Case of the High Operation of Lithotomy," "Transactions of Provincial Medical and Surgical Association," vol. xvii., London, 1850.

[2] G. B. Günther, "Der hohe Steinschnitt," Leipzig, 1850.

It may be an over-sanguine belief that the supra-pubic operation will some day be the most generally employed, and the blind thrusts into the perineal tissues, the prostate gland, the seminal vesicles, be abandoned for that method in which no important structure is endangered, and every step can be followed with the eye; but this belief is held in the world, notwithstanding the grave sentence which stands at the head of this paper. As Franco wrote at the head of his "Petit Traité," in 1561, "*Il faut durer pour endurer.*"

Art. V.—*The Value of Clinical Odors.* By T. J. Hutton, M. D., Assistant Physician, Brigham Hall, Canandaigua, N. Y.

The sense of smell is one of the most delicate although the least regarded of all the senses. In detecting minute particles of substances, it puts to shame the finest chemiacl reaction and the wonders of spectrum-analysis. One thirty-three-millionth of a grain of musk may be perceived by its odor.[1] Nor is this delicate power of olfaction limited to the Nasones.[2] Humboldt tells us that the Peruvian Indian can smell the approach of a stranger in the darkest night while yet far off, and can also tell with certainty whether it be a white, a negro, or an Indian. The Arabs of Sahara can smell a fire thirty to forty miles distant.[3] Certain it is that odors are closely interwoven with every stage of human life. We are born in odors, we live in odors, and we die in odors. They yield pleasure and pain, health and disease, life and death. The aroma of food for table, causing free secretion of digestive fluids, and the fragrance of forests, shrubs and flowers "in the leafy month of June," are by no means insignificant sources of pleasure.

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[1] Bernstein's "Five Senses in Man," p. 289.

[2] Among the Romans certain families were known by their physical characteristics, those having big noses being called *Nasones.* Popular Science Monthly, Supplement, May, 1878.

[3] Carpenter's "Mental Physiology," p. 144.

There is also life in odors. The new-born, apparently dead, the asphyxiated, and those unconscious from syncope, are revived by inhaling odorous substances. Many ancient nations, among them the Hebrews,[1] Romans, and Germans,[1] believed that some forms of odorous matter, notably the sweet breath of young maids, contained a "first matter" possessed of life-giving properties. Upon this idea was based the *Gerocomic* system, which aimed to prolong the life of the aged. "Hermippus, a pedagogue, lived 115 years 5 days by breathing the breath of young maids." King David adopted a similar remedy; and "an old burgomaster, caused by Boerhaave to sleep between two young persons, improved greatly in strength and activity."

But there is death, too, in odors; nor can we find it recorded that society in any stage of development extolled, fêted, or received with open arms the man who performed the part of the fly in the apothecaries' ointment. Moses compelled the Jew in the wilderness to turn back and cover his stench-brewing fæces;[2] and the devoted sister of Bethany despaired of even the Master's power to resurrect her brother, because "he *stinketh* already."

Clinically, and to the physician, odors serve a threefold purpose: (1) they warn us of the danger of disease, or indicate diseased process already established; (2) in certain diseases they indicate particular stages of progress; (3) in other affections we may form a correct diagnosis by the odor alone.

Our first heading needs no comment. Odors differ with the composition of substances. Good odors are as a rule beneficial, bad odors injurious. This property of matter was given for our guidance: stench always bodes ill. Nor does our second lack illustration. If a man be *dead*-drunk, you may smell liquor; if narcotized by opium, you can detect the odor of that drug. In a certain stage of diphtheria you get the putrid, grumous, liquid discharge from the nostrils—then all hope is gone. The breath is fetid when gangrene supervenes on pneumonia. So, too, a fetor is emitted when mortification attacks severe contusions. When the fullness of time is come to get it, the mice or mouse-nest smell means typhoid fever and nothing else.[1] Odors, like other sense-impressions, are distinct and recognizable one from another. The Swiss goatherd could not be deceived as to the perfume of his pets, nor the cleanly housewife in the odor emitted by absent-minded cats.

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[1] Hufeland's "Art of Prolonging Life."

[2] Pentateuch.

Let us now instance a few of these unfriendly and *pathognomonic* quintessences. Every surgeon remembers the sweetish, mawkish, milky odor of that ill-starred malady, pyæmia. He who has seen a few cases of advanced *cancer uteri* will not readily forget the odor. So if a soft tumor emerge from the top of the skull, growing rapidly when cut off, and always smelling offensive, one need not fear calling it *cancer cerebri.* Lesions of the urinary apparatus may be detected at a distance. Incontinence by saturating the clothing gives no uncertain scent. Suppression, and retention permitting reabsorption, charge the pulmonary and cutaneous exhalations with urea. In the last stages of alcoholism[2] and marasmus, in which the poor victim lies dying for days, the odor is *sui generis:* in the former that of urea and alcohol, in the latter the *starvation-fetor*—to be mentioned again in connection with mental disease—mingled with that of urea. No one who has waited on a large number of consumptives month after month can doubt that in the advanced stages the broken-down pulmonary tissue raised by coughing yields a peculiar odor. To smell a patient afflicted with ozæna is to have formed a correct diagnosis. The menstrual epoch has its own fetor—intensified when the bodily secretions are perverted; likewise the odors of the lying-in-room secretions are not readily mistaken for those of any other condition. Nor need it be told any intelligent adult that many a marital engagement has been broken and no small heap of conjugal infelicity caused by the unstomachable odors of foul mouth and decaying teeth. Typical cases of variola may be known by the odor.[1]

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[1] Watson's "Practice."

[2] "A peculiar foul-breath smell, impossible to describe or mistake when once it has been smelt." Anstie, in Reynolds's "Syst. Med."

In sluggish-gutted persons whose *primæ viæ* are not cleared out oftener than once in two or three weeks, there is a characteristic odor. So, too, obstruction of the *ductus communis*, causing vicarious elimination of bile by lungs and skin, insults our olfactories. The belching of onion-scented gases bespeaks weak primary assimilation and dyspepsia. The tamperer with self, and the innocent but irritable and heavy-laden subject of involuntary seminal emissions, may often be known by their odor. A German *savant* claims that he can detect by odor any man who has had sexual connection within twenty-four hours preceding his examination, and proposes its application in criminal proceedings at law.[2] The scalding dejections of summer diarrhœa exhale a peculiar odor, and the stench of dysenteric[3] discharges is not far from characteristic.

Finally a word on the so-called "odors of the insane." They suffer two kinds of bad odors, subjective caused by perversion of the function of the olfactory nerve, and real odors. An instance of the former kind, observed by Esquirol, is recorded by Bucknill and Tuke.[4] "Patients not unfrequently complain of fetid smells."[5] The predominant odors noticed in the early periods of mental alienation are sulphur and putrid bodies.[6] So of real odors, Tissot says: "chez deux malades une odeur cadavereuse insupportable."[7] Blandford says: "I have already told you that in acute mania there is often an intolerable effluvium."[8] Blandford is in doubt as to whether this odor be characteristic. Even if it be so, we will have made our diagnosis prior to its development. Yet it has a fixed value.

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[1] "One might name the disease at once by smell."—Watson. "A peculiar, faint, sickly odor, quite *sui generis*."—Aitken.

[2] *Medical and Surgical Reporter*, 1878.

[3] "The odor of the evacuations is *sui generis*." Dr. Begbie in Reynold's "Syst. Med."

[4] Bucknill and Tuke, p. 212.

[5] Sankey's "Lectures on Mental Disease," p. 7.

[6] Forbes Winslow, p. 449.

[7] Reynolds (" On Epilepsy ") quotes this from Tissot.

[8] "Insanity and its Treatment," p. 202.

Neither Blandford nor Hammond gives satisfactory explanation of these odors; and the former author, practically accepting Rousseau's *exalted* opinion that the human mind is limited in its capacity, like a barrel-organ, despairs of our ever being able to explain them: "Unfortunately we are not likely to advance beyond mere theories and opinions on the subject."[1] Here we disagree, believing as we do that "there is nothing hidden that shall not be revealed," to the inquisitive, penetrating, truth-seeking eye. *Bodily disease* (as distinguished from mental), *deranged secretions and starvation will explain every odor perceived among the insane. The vast majority of these odors are caused by deranged secretions and starvation*, the most putrid being perceived in persons who have ceased to take, or take but little, food. A cholagogue cathartic, perhaps repeated, frequent bathing, and a gallon or two of milk and beef-tea, will in my experience speedily exorcise every odor of the insane, where there is no carious or malignant bodily affection to otherwise account for its continuance. Surely there is, then, no mystery about the odors of the insane.

Art. VI.—*Tarsitis Syphilitica: Gummy Infiltration of the Tarsus.*[2] By Charles Stedman Bull, A. M., M. D., Surgeon and Microscopist to the New York Eye Infirmary, Ophthalmic Surgeon to Charity Hospital.

Infiltration of the tarsus, with a gummy deposit, is a rare lesion in constitutional syphilis. Michel[3] describes it as a chronic indolent infiltration of the tarsus, which does not involve the external skin. This process of infiltration is, however, not always indolent or passive, if one may judge from an experience of a single case. Magawly has described four cases of this kind in the *St. Petersburger Medicinische*

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[1] Blandford, p. 392.

[2] Read before the American Ophthalmological Society at Newport, July 25, 1878.

[3] Graefe und Saemisch, "Handbuch der Augenheilkunde, iv., 1, p. 441.

Zeitschrift, Bd. xii., Heft 4, and his paper is referred to by both Nagel and Michel. In two of his cases the lower lid was involved in an apparently homogeneous, non-fluctuating tumor, of the size of a small pigeon's egg, accompanied by some little œdema of the conjunctiva, and swelling of the rest of the affected lid. In his two other cases the upper lid was involved, and the tumor was circumscribed. In one of the latter cases, after the tumor had disappeared, it was found that the tarsus had lost entirely its normal resistance. In 1873 Vogel wrote an inaugural treatise, entitled "Perichondritis of the Tarsal Cartilage," in which he reports a case of syphilitic infiltration of the tarsus, resembling Magawly's cases. The affection was characterized by a marked swelling and redness of the lids of the left eye. The swelling was not homogeneous, but varied in density in different places. The margin of the lid was movable over the swollen parts and intact, with the exception of a small spot of ulceration. Vogel regarded it as a chondritis or perichondritis of the cartilage of the lid. If we accept Waldeyer's view, that the tarsus contains no cartilage cells, this cannot be regarded as a chondritis. After seven weeks' administration of potassium iodide the swelling of the lids entirely disappeared. In this case the primary lesion had occurred eight years before.

In the *Klinische Monatsblätter für Augenheilkunde* for January, 1878, Fuchs reports three cases of tarsitis syphilitica, met with in Arlt's clinic during the past four years. The first case was a man with a dense, smooth, painless swelling of both lids of one eye, which had lasted for four weeks. The period of infection was not known, but was probably recent, as there was still upon the glans penis a partially-cicatrized ulcer, a papular syphilide upon the face and body, and enlarged cervical glands. The patient could not open the eye, but the lids were easily everted. The tarsus was very much thickened, but retained its normal shape in both lids. Conjunctiva not involved. Entire loss of cilia on both lids; small ulcer at external commissure of lower lid. In about four weeks the patient was discharged cured. Fuchs's second case was a woman, aged thirty-four, who contracted a chancre four years before, followed by various constitutional symptoms, among others left hemiplegia, from which she recovered in four months. Two years later the left upper lid began to swell, and the infiltration became so dense that the eye could not be opened. Six months later this ulcerated, remained open for four months, and then healed, the lid gradually regaining its normal state. Six months before Fuchs saw her the same thing developed in the right upper lid. The whole tarsus was very much thickened, but retained its general shape; and here also the cilia were wanting. The same treatment by mercurial inunction and potassium iodide gave the best results, though requiring a somewhat longer time than in the first case.

Fuchs's third case was a man, aged twenty-eight, initial lesions six years before. In this case the process was a rapid active inflammation, accompanied by great pain. It was in the right upper lid, and had lasted only eight days. It grew rapidly, and the pain became so severe that an incision was made in the tarsus, which showed a brawny, yellow surface, and there was no hæmorrhage. By constant use of mercurial inunction, potass. iodide, and the local application of tinct. iodin. for three weeks, the swelling of the lid began to diminish, and at the end of two and a half months the patient was discharged much relieved, though the tarsus was still hypertrophied, but soft and yielding, and the pain had entirely disappeared. The final result reached in this case is not known.

The following case was under the writer's care during the past year, and its rarity will perhaps excuse a detailed account: The patient was a young man, aged twenty-seven, a bar-tender, who applied for treatment in November, 1877. He had contracted syphilis about four years before, the initial lesion having been on the glans penis, near the mouth of the urethra. The chancre did not heal for nearly six weeks, and meanwhile he had enlargement of the inguinal glands and a general eruption all over his body and face. The next manifestation of constitutional trouble was a series of mucous patches in the mouth and on the tongue, and a painful ulceration on the right side of the fauces.

During the second year there appeared another eruption, which was papular, and his hair began to fall out. He had never had any systematic or long-continued treatment. His eyes had always been perfectly sound until six weeks before I saw him, when he noticed that the lower lid of the left eye felt heavy and large; and, on looking in the glass, the lid was seen to be slightly swollen, the skin a little reddened, and the conjunctival surface felt rough. There was no pain and no secretion of any sort, and vision was undisturbed. These symptoms continued slowly to increase, without any pain or discharge, until he presented himself for treatment. When I saw him, the lower lid of the left eye was very much swollen, making a tumor as large as a robin's egg, the skin very much reddened over it, and the swollen lid pressed closely against the eyeball. The tumor was hard, resisting, solid to the touch, and absolutely painless. The lid could not be everted; but, by pulling it away from the eye, the conjunctiva was seen reddened, but not markedly so. The tumor seemed to be homogeneous throughout, and for some time past had caused epiphora from compression of the punctum and canaliculus. There was a pustular eruption on the face and neck, and a few spots on the dorsum of the hands. Convinced of the syphilitic nature of the palpebral lesion, I placed the patient immediately upon the mixed treatment, using half an ounce daily of mercurial ointment upon the soles of the feet, and commencing with potass. iodid. grs. xv. three times a day, and rapidly increasing the dose. After about ten days of this treatment, the swelling of the lid began to soften, and the inunction was used on alternate days. At the end of the third week the swelling had diminished considerably, and the mercury was discontinued, the potass. iodid. being given in grs. xxx doses. At the end of the sixth week the tumor had entirely disappeared, the lid had resumed its normal consistency and motility, and the cutaneous eruption was rapidly fading out, and at the end of the eighth week the patient was discharged cured.

This seems to have been a gummy infiltration of the entire substance of the lid. As the tumor disappeared, and the patient recovered, we have not the advantage of a microscopical examination of the lesion; but the infiltration in all probability started in the tarsus, and spread thence to the other tissues of the lid. The conjunctiva did not seem to be involved. After the extreme density of the swelling had given way, the seat of the hypertrophy was easily located in the tarsus, which retained more or less perfectly its shape. In this case there was a complete absence of the cilia of the lid, due probably to compression of the hair-follicles by the gummy infiltration of the surrounding tissue. After the swelling had diminished sufficiently to admit of eversion of the lid, in various places through the conjunctiva could be seen a brawny, yellowish-white appearance of the infiltration, which slowly disappeared as the absorptive process went on. The cure is probably not a complete one; for, with so much and dense an infiltration, there must result more or less deformity of the tarsus, either from absorption by compression, or from softening of its tissue. In all the cases reported, this making the ninth, the course seems to be a very chronic one, though a cure is no doubt hastened by an energetic antisyphilitic treatment.

Clinical Lectures.

I.—*Clinical Lecture on Syphilitic Brain-Lesions.* By Edward C. Seguin, M. D., Clinical Professor of Diseases of the Mind and Nervous System in the College of Physicians and Surgeons, New York. Reported by P. Brynberg Porter, M. D.

1. Syphilitic Arteritis; 2. Tumor of the Brain.

Gentlemen: The first patient whom I bring before you to-day, I introduce merely for the purpose of exhibiting to you in an exaggerated form a symptom which is also seen in the next patient, who is suffering from some cerebral affection of very obscure origin, and upon whose case I wish to dwell somewhat more at length. This symptom is increased reflex movements, and in the present instance they are certainly phenomenal, being much more marked than in any case which I have as yet had an opportunity of bringing before you.

The man had hemiplegia two years ago, and since then reflex muscular action has been most extraordinary. You are probably all familiar with the reflex movement that is caused by striking the leg a sharp blow just below the patella when the limb is flexed and allowed to hang in a relaxed condition; and you perceive how very exaggerated the motion is here when the experiment is tried, the slightest tap, such as would scarcely kill a fly, being all that is necessary to produce it. In the upper extremity the same strongly-marked phenomena are exhibited when the tendons of the flexor longis pollicis, biceps, triceps, and other muscles, are thus lightly touched.[1]

I pass now to the second patient, whose case, I think, we shall find a very interesting and instructive one. The man's name is Peter R——, an Irishman, thirty-seven years of age. Fifteen months ago he had a chancre, which did not appear until a month after exposure, but which lasted for a considerable time. Six months later, blotches, which did not itch, appeared upon the skin, but no other signs of syphilis became developed. This is not, perhaps, a very satisfactory history of specific infection, but it is, at all events, as clear as we ordinarily obtain from hospital and dispensary patients, and so I think we shall have to accept it as such. With the exception of this eruption, he remained well until September last, when he noticed a weakness of the right leg. There was slowly developing paralysis in this extremity, which continued to increase until about November, since which time there has not been much change in the condition of the limb. The paralysis also affected the upper extremity on the right side, and about a month ago the grasp of the right hand indicated, in three trials, the numbers 35, 35, and 34 respectively upon the scale of the dynamometer, against 40, 40, and 36 respectively marked by that of the left hand. In addition, there has been right facial paralysis and some little impairment of memory. He has never had any injury to the head, nor does he suffer from cephalalgia. There is nothing wrong about the eyes, as far as can be detected by the ophthalmoscope, and the urine has also been examined with a negative result. Finally, speech is entirely normal, there being no evidence of any kind of aphasia. One week ago a new and important symptom showed itself, and that is, weakness of the other lower extremity. There has also now become developed, for the first time, increased reflex. In this instance it affects not only the muscles, but the bladder and other organs in addition; in other words, it is both tendinous and visceral. Formerly it was erroneously supposed that in such cases there was real paralysis of the bladder, and such is the vague sort of impression still prevalent among many of the profession; but, about twenty years ago, Brown-Séquard demonstrated conclusively that frequent, interrupted involuntary escape of urine from the bladder was due merely to reflex spasm.

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[1] This symptom—increased tendon-reflex—has recently been brought into prominence by Profs. Westphal and Erb in Germany, and I have followed their researches with much interest. I had this same patient before you last autumn, and tried the experiment of freezing the skin over the ligamentum patellæ, and then tried the test. The reflex contractions of the quadriceps were then just as well marked as before the freezing, showing that the sensory nerves concerned in the act were not cutaneous but tendinous. It is interesting to note that, since the clinical observation of Westphal, nerves have been discovered in tendons. The meaning of increased tendon-reflex I do not hold to be specially or specifically useful in practice. It simply is one more means of determining increased spinal excitability. Prof. Westphal has claimed that absence of tendon-reflex at the knee (knee-phenomenon) is an early symptom of sclerosis of the posterior columns; and I am pleased to say that observation upon several of my tabetic patients has confirmed this.

Now let us look for a moment at the objective symptoms. The walk, you perceive, is not that of hemiplegia, lacking entirely the scythe-like leg movement so characteristic of that affection. This man drags his feet after him in a very slow and painful manner; and, while both the limbs are lacking in power, it is evident that the right one is considerably the weaker of the two. In walking he frequently staggers (though there is nothing especially significant about this), and he is unable to stand upon one leg. The naso-labial fold is much more distinct on the left side of the face than on the right, and the left pupil is slightly larger than the right. The tongue is found to deviate somewhat to the left, contrary to the ordinary rule in such cases, according to which it should incline toward the paralyzed side. The relative power in the two hands, as shown by the dynamometer, remains about the same now as it was a month ago. As far as we are able to make out, therefore, the case presents the symptoms of double, incomplete hemiplegia. There is also increased reflex in the muscles, which, though not so extraordinary as in the first case I showed you, is still exceedingly well marked, and, as you perceive, is much stronger upon the right side than on the left, both in the upper and lower extremity.

The next question that arises is, which is the situation of the lesion, or rather lesions which have produced the phenomena noted. If these had been in the anterior lobes of the brain and near the island of Reil or the third convolution, we should have had some interference with speech; and it is equally certain that they cannot have been in the posterior lobes. The first lesion is, no doubt, to be looked for in the middle portion of the left hemisphere, and the second in the corresponding part of the right hemisphere. I think we can exclude here a lesion of the base near the median line; for, when this occurs, serious trouble ensues much more rapidly than has been the case in the present instance, and the cranial nerves are affected in a much more marked manner.

Now, what is the nature of the lesion? When the nature of the attack that has occurred is taken into consideration, we must undoubtedly exclude both hæmorrhage and embolism. As far as relates to the latter, moreover, I may mention that the heart is entirely normal. Again, there does not seem to be any reason to suspect a diffused peri-arteritis, causing aneurisms from which might possibly result the symptoms present in the case. Syphilitic tumors of the brain are quite common; but, if there were one at the base here, we should unquestionably have a lesion in the eye, such as choked disk, or neuro-retinitis. Let us, then, inquire whether we may not have here the form of arteritis sometimes met with in syphilis.

Syphilitic arteritis is not degenerative, like atheroma of the vessels. It is true that some authorities are of the opinion that atheroma is proliferative at first. This view lacks proof, however, while there can be no possible doubt that syphilitic arteritis is essentially hyperplastic and proliferative. In the first place, you must remember that the lesion is a diffused one, affecting the arteries in the rest of the body, as well as those of the brain. To speak more strictly, it is an endo-arteritis, the hyperplastic formation taking place on the inner surface of the vessel, and usually confined to one side of it. In some cases, however, the whole surface is affected in the same manner, and then the calibre of the artery becomes so diminished by this choking-up process as to finally be almost impervious. The deposit of inflammatory products is not uniform along the whole course of the vessel, but takes place irregularly at various points, so that a number of consecutive little tumors are thus produced. After a time the proliferation cells undergo fatty, but never calcareous, degeneration. By this choking of the arteries the supply of blood to the brain is much diminished, and sometimes we have the same result as occurs in embolism, viz.: parts of the brain become necrosed in consequence. In such cases recovery depends on whether a vital part of the brain has become affected or not. If the third frontal convolution were involved, the patient would never recover his speech, although he might take any amount of iodide of potassium. The prognosis, as you may readily understand, is usually very grave.

In the present case, however, the paralysis is so imperfect that there is room for considerable hope. No essential portion of the brain has probably as yet become affected; but the result, I would impress upon you, is still very uncertain.

This syphilitic arteritis is a very recent discovery in medical science, and it was only in 1873 that Heubner first described it. Since then it has been suggested that we may possibly have a somewhat similar arteritis which is non-syphilitic; but as yet there is not sufficient evidence to prove the point. Heubner says that the specific arteritis is as common as specific tumors of the brain; but whether this is really the fact or not can only be determined by a more extended series of observations than there have as yet been time and opportunity for since the discovery was made.

In the patient now before us, we are led to exclude common tumor of the brain on account of the absence of three prominent characteristics of that condition, viz.:

1. Choked disk.
2. Convulsions.
3. Localized pain in the head.

On the other hand, the symptoms correspond perfectly with what we would naturally expect in the syphilitic affection of the cerebral arteries described; and, as there has been a distinct history of syphilis in the case, I think there can be no reasonable doubt of the correctness of our diagnosis.

But the third patient, whom I now present to you by way of contrast (and I am very glad, indeed, to have the opportunity of thus bringing the two together for your observation), has all the three symptoms of tumor of the brain to which I have just called your attention. This woman is a widow, fifty years of age, a native of Ireland. Like many others suffering in a similar manner, she found her way to an eye infirmary, and it was through the kindness of my friend Dr. Webster, under whose care she came, that she was sent to me. The following is her history: One morning in the month of November, 1876, she found to her astonishment that she was paralyzed and numb on the left side. Her speech was also considerably affected, but was not lost. Afterward the paralysis very decidedly improved, but there was no change in regard to her power of articulation. At the same time she began to suffer from severe pain in the head and noises in the right ear. Her eyesight remained good for quite a long time, but became impaired about the beginning of February of this year. Dr. Webster, who examined her eyes at the Manhattan Eye and Ear Hospital, states that there is no diplopia or hemiopia, but that there is well-marked neuro-retinitis, with hæmorrhages in the retinæ, and, in addition, incipient cataract in one eye. About ten years ago, just before her husband's death, the woman had a venereal wart, followed by the characteristic symptoms of constitutional syphilis, such as sore-throat and non-itching roseola.

The impairment of vision, you will perceive, is quite a late symptom. The pain in the head, on the contrary, has existed from the beginning, and has always been more marked upon the right side. I regret that no thorough examination of the ear on that side has been made. Yesterday the patient told me that within the last two or three months she has had several attacks of dizziness, accompanied with complete loss of speech. These lasted but a few moments, she says, and she thinks that she did not lose her consciousness in them. They seem to be epileptiform in character, as far as I am able to make out, but not to amount to real convulsions. I should like, however, to have the testimony of others besides that of the patient upon this point.

On examining into her present condition, we find that she still suffers from a good deal of pain in the head, chiefly upon the right side, and that she has impaired vision with choked disk. In addition, the weakness upon the left side of the body still continues, and she now has attacks of temporary loss of speech. When she walks, her gait is very peculiar, there being a distinct falling of the whole side (left) in which the hemiplegia has occurred. There is no facial paralysis present, as you perceive that the naso-labial folds are equally distinct on the two sides. The strength of the left hand, as compared with that of the right, is indicated by the dynamometer, which marks for the former 17 and 18, and for the latter, 25 and 28, in two testings.

Let me now direct your attention for a moment more particularly to the lesion met with in the eye here, for it is one which I think all medical men should learn to recognize. In the normal condition of the eye we get a very distinct outline of the disk. The margin is sharply defined, and not raised above the level of the surrounding retina. Indeed, it is sometimes actually depressed, and when this is the case it is denominated normal or congenital excavation. In neuroretinitis, however, instead of the creamy color and sharp outline of the disk of the optic nerve, we find a swollen surface, not infrequently of a decidedly reddish hue, and without any distinct demarkation between the nerve and the surrounding retina. There are often blotches of hæmorrhage on various parts of the retina, and sometimes in the disk itself. This condition is seen in the present case, and the nerve is also very decidedly protuberant here.

As to the situation of the cerebral lesion in this case, we can only say that it is probably situated somewhere in the middle portion of the right hemisphere, no more definite localization of it being as yet possible. As regards its nature, there can be little doubt that we have to deal with a tumor. In favor of its being such, we have the three points of localized pain in the head, choked disk, and attacks of loss of speech, which are in reality probably epileptiform seizures. If the patient had two lesions, with aphasia, we should undoubtedly have other symptoms which are now lacking. Next, as to the essential nature of the tumor, with the history that the patient presents, the probabilities are altogether that it is of syphilitic origin. In these specific tumors of the brain, which are technically called *gummata*, the new cells, formed at the expense of the connective tissue of the brain, are found very closely packed together; and fatty degeneration is exceedingly apt to occur in those lying in the centre of the growth.

One point seems a little difficult to understand, and that is why a patient with such a tumor of the brain should be taken with a sudden paralysis. But we must remember that most portions of the brain accommodate themselves in a very remarkable manner to any slowly-increasing growth of this character, and that it is often only after it has attained quite a considerable size, or produced some special irritation, that such a tolerance is no longer possible. When this point is reached, either paralysis or convulsions are apt to occur in a very sudden manner.

These two cases form a very interesting study when taken in connection with each other, and, in order to bring them more clearly together before you, permit me to once more run briefly over the prominent points in the former one: The patient, a male, and thirty-seven years of age. Fifteen months ago he had constitutional syphilis, and six months ago right hemiplegia, gradually developed, and without aphasia or sensory disturbance. Recently there has been double hemiplegia, the left side being also affected, and with this, increased reflex. Finally, there has been no localized headache, no epileptiform seizures, and no lesion of the optic nerves. The diagnosis is syphilitic arteritis, and consequent localized cerebral softening.

The prognosis in the two cases is very much the same, but probably somewhat better in that of the patient with the tumor than that of the one with arteritis.[1] As regards the case of tumor, however, it is necessary to make the prognosis concerning the affection of sight separate from that in regard to the general condition; for there is great reason to apprehend irreparable atrophy of the optic nerve. It is possible that the tumor may not prove fatal to the patient, though in a considerable number of cases such is the result. This case illustrates very admirably the utility of the ophthalmoscope in the study of nervous diseases, and we are now called upon quite frequently to resort to it in troubles about the head. As instances, I may mention the cases of basilar meningitis occurring in children which I brought before you some little time ago, and in which it would have been quite impossible to make a correct diagnosis without the aid of this instrument. So, too, in Bright's disease and other affections, the instrument is often of the greatest assistance to the general practitioner, as well as to the specialist; and I think that every medical man should be more or less familiar with its use.

II.—I. *Cancer of the Liver, Uterus, Meninges, and Cranial Bones;* II. *The Cirrhotic Variety of Chronic Bright's Disease.* By ALFRED L. LOOMIS, M. D., Professor of Pathology and Practice of Medicine in the Medical Department of the University of the City of New York. Reported for the NEW YORK MEDICAL JOURNAL.

GENTLEMEN: Before introducing any patient to-day, I wish to exhibit to you some exceedingly interesting pathological specimens, which have been taken from a case which recently terminated fatally, at Charity Hospital, Blackwell's Island. The patient, a female, was admitted to the hospital twenty-four days before her death. The symptoms complained of at that time were but few in number, and, apparently, not of a very serious character; but, jaundice being one of them, attention was, of course, directed to the liver. A careful examination being made, the organ was found to be considerably enlarged, and a diagnosis of malignant disease was arrived at. When removed from the body after death, the liver was found to weigh more than eight and a half pounds, and I now present it to you for inspection. You perceive that the cancer is of the nodular form, and that the organ is everywhere deeply stained with the coloring matter of the bile. Although the disease is so extensive, there is still left a very considerable portion of the normal parenchyma; as indeed was to be inferred during life, since the discoloration of the skin and conjunctiva showed that bile was still secreted by the liver, though the obstruction of the bile-ducts by the cancerous growth led to its reabsorption by the blood. At the autopsy all the tissues were found to be more or less tinged with bile-pigment, but this was most marked in the liver itself.

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[1] August 1, 1878. The patient improved rapidly under biniodide of mercury and iodide of potassium. No epileptiform seizures recurred; her hemiplegia and headache passed away, and Dr. Webster has repeatedly verified the fact that the neuro-retinitis has much subsided. The patient can now thread a needle, and she may regain quite good sight. She is still taking ℈j of iodide of potassium three times a day. At one time her gums were touched by the mercurials, and she took ℈ij of iodide three times a day. I may add that during this treatment her general health improved.

As is ordinarily the case in cancer of the liver, there was some effusion into the peritoneal cavity in this case. This is due, as a rule, not to peritonitis, but to pressure upon the portal vein. There was also, I believe, more or less general anasarca here. In addition, there was a certain amount of peri-hepatitis, in which the capsule of Glisson, as well as the neighboring portions of the peritonæum, is usually involved; and it was due, of course, to the growing extent of the carcinomatous neoplasm.

I next show you the uterus and ovaries taken from the same patient, and you perceive that they are affected by the malignant disease to almost as great an extent as it is possible for them to be. Yet during life the fact that they were also the seat of cancer entirely escaped notice. While the patient was in the hospital, there was nothing that directed attention to these organs; and cancer of the liver having been detected it was not thought necessary to look for any further explanation of the symptoms that were present; which, as I have before mentioned, were remarkably slight, considering the gravity of the case. On examining the specimen carefully you will find that not only are the uterine walls very extensively involved, but that the carcinomatous mass occupied a considerable portion of the cavity of the organ. Just within the cervix you will also notice a polypus with a pedicle of some length, but this had nothing to do with the malignant disease.

But by far the most interesting specimen of all (on account of the rarity of cancerous deposit in this locality) is that which I now exhibit to you, the *dura mater.* There was, no doubt, some pachymeningitis, and, as a result, this new formation, which, you will perceive, is also upon the free surface of the *dura mater*, and not upon the attached surface alone. The cranial bones were also the seat of the carcinomatous disease, as I am informed that there were numerous exostoses upon their surface, and it extended to the *pia mater* as well. It is more rare for cancer to attack the cranial bones than the meninges without affecting the bones.

The specimens which have now been shown you are all that have been sent to me; but it is stated that the disease also involved the peritonæum and the pericardium. It seems to me that it is a very significant fact, in connection with cancer, that it always affects the fibrous tissues. This is seen, for instance, in cancer of the stomach, and in the present case of hepatic cancer, where the disease has originated in the portal canals. We are now coming to regard carcinoma and tubercle as true inflammatory products, and not as heterologous deposits, as they were formerly considered. The seat of cancer, you will find, is almost always originally in the lymph-canals; and I regard the position, that it is from the first a constitutional affection, as no longer tenable. It is primarily purely local, and only secondarily constitutional. Still, it is undoubtedly true that any such local manifestation is exceedingly apt to be followed by other cancerous developments in the system, showing that there exists in the individual a tendency to this class of neoplasms. But by means of the lymphatic vessels, as it seems to me, we are in the way of reaching the solution of the problem of cancer. For instance, a woman who is affected with scirrhus of the breast has the tumor removed before the axillary glands have become involved. The chances are altogether in favor of there being no return whatever of the growth. In case the lymphatic glands have already become affected, however, the cancerous disease is almost certain to reappear, and in such a patient the breast would only be removed as a purely palliative measure. In any case of cancer, therefore, it would appear that, if the tumor can be removed by surgical interference before the neighboring lymph-channels become involved, there is a very small chance of its return; and I should be willing to base my prognosis entirely on the point whether this were the case or not.

When the cancer of the breast is removed after the axillary glands have begun to be affected, there may be a development of cancer in the lungs after a longer or shorter period. In the latter organs, the carcinomatous growth does not commence in the air-cells, but here, too, in the lymph-canals. It seems altogether probable that the pleura is first attacked, and that the process afterward extends to the lungs proper. Not long since, a lady came under my care who exhibited all the evidences of phthisis, with the exception that there had been no rise of temperature; but, when I learned that a tumor had been removed from her breast a year or two previously, I did not hesitate to make the diagnosis of cancer of the lung. It is true that she told me that this tumor had been pronounced non-malignant; but the fact that the axillary glands were enlarged and indurated led me to an entirely different conclusion. Quite recently this patient died; and, as an autopsy was made by the gentleman in whose charge she was at the time of her death, he very kindly sent me a portion of the lung, and it fully confirmed the diagnosis that had been made. From such instances as this, therefore, I think we can safely say that, if the lymph-channels have become involved beyond the extent of the tissue removed by operation, the chances are altogether that there will be a fresh development of cancer; but that, if the lymph-channels are not affected beyond the point of removal, the opposite is true.

Chronic Bright's Disease (*cirrhotic variety*).—Here is a stout-looking man who states that he took a heavy cold, which was followed by marked shortness of breath, about three months ago. Before that time he had never had a cold which occasioned him any serious annoyance. He attributes his present trouble to exposure while attending a funeral, the ground being damp in the cemetery and his shoes thin; but says he had no chill at all at the time he contracted the cold. At first he suffered only from a cough; but a few days later, he says, he had a severe chill, though he was not confined to bed. The matter that he has expectorated he describes as having always been white and frothy, from the commencement of this cough down to the present time. What has caused him the greatest trouble has been the dyspnœa, which is sometimes very marked when he goes up-stairs, or otherwise exerts himself; but he says that he has not lost any flesh, as far as he is aware. He is a liquor-seller by occupation, and is confined within doors most of the time, ordinarily taking but little exercise. He was formerly intemperate in his habits, but states that he does not drink now. Up to the time of his present illness, he has always enjoyed good health, with the exception of an abscess in the rectum at one time, and he has never had rheumatism or gout.

On questioning him more closely, I find that within the last two months his feet, face, and hands have been considerably swollen; and, when we come to investigate the matter, it is ascertained that there is still some puffiness under the eyes, and marked œdema of the lower extremities, which pit on pressure as high up as the knees. There also seems to be some little swelling of the hands at present. He complains of considerable soreness of the chest, and says that he cannot lie on the left side. On inspection, it is found that there is no retraction upon either side of the thorax, and that both the lungs expand well. Vocal fremitus is also good on both sides. On percussion, we find that there is no dullness anywhere, the only difference between the two sides being the normal slightly greater resonance upon the left side in the infraclavicular region. When the ear is placed to the chest, there are no sonorous, sibilant, or other *râles* to be heard, and nothing to indicate even bronchitis. It is true that the respiratory sounds are somewhat exaggerated, and that expiration is slightly prolonged; but, as this is found to be the case everywhere over the chest, I cannot doubt that it is entirely normal in this particular individual.

It is noticeable that the radial pulse is remarkably full and strong; while the impulse of the heart is rather indistinct. Still, we must remember that the man is very fat, and no doubt the feeble impulse is due in large measure to this circumstance. Through the stethoscope, the heart-sounds are apparently about normal; and, if there is any hypertrophy present here, it is not well marked as yet. The abdomen is pretty large; but this is due to the quantity of adipose tissue in its walls, as it is not at all tense, and evidently contains no fluid. The area of dullness over the liver is of normal extent; so that there can scarcely be cirrhosis at present. The surface veins are found to show with unusual distinctness in various parts of the body.

We have here, then, a patient who is affected with œdema of the feet and face (the latter not nearly so marked at present as it has been), cough accompanied with frothy expectoration, and shortness of breath upon making any exertion. That is all. As we have seen, the examination of the chest has proved negative in its results; and the presence of the œdema naturally suggests trouble in the kidneys. Of course we want to find what is the condition of the urine; and I am informed by a trustworthy physician who has lately had charge of the case that it is, apparently, perfectly normal in every respect. He has examined it three times, and found its specific gravity to indicate no deviation from health, while careful testing with nitric acid and heat has revealed not the slightest trace of albumen in it. No examination, however, has yet been made for casts.

Notwithstanding the negative results as yet obtained from the urinary examination, is there anything else about the case which would seem to indicate Bright's disease? Yes, the pulse is of that character which we naturally expect to find in this affection. Some authorities have claimed that the peculiar hard and full pulse not infrequently noticed in Bright's disease is in reality due to degeneration of the arterioles and capillaries; but this is pure hypothesis, and Burdon-Sanderson has conclusively demonstrated that there is no degeneration of these minute blood-vessels, unless there is at the same time a like degeneration of the tissues generally. The presence of urea in the blood, as it seems to me, offers a much more satisfactory explanation of the character of the pulse in these cases; for I can readily see how urea might interfere very seriously with the circulation, and yet leave no pathological lesions after death. Urea is, as you know, a potent and most deleterious agent, and it is my impression that the circulation of such a poison in the blood, by its action upon the nervous centres, prevents contraction of the vessels.

But we have not yet definitely settled the question whether this a case of Bright's disease or not. It certainly is not acute Bright's disease; for, if that were the case, we should undoubtedly have a change in the specific gravity of the urine, and also the presence of a considerable amount of albumen in it. Again, with such an amount of dyspnœa as the patient complained of, we should naturally expect to find marked œdema of the lungs; but, as the physical exploration has shown, there is nothing of the kind present. But now let me remind you that there is a form of Bright's disease in which dyspnœa is a very prominent symptom, and yet in which there is no change whatever in the lungs. This kind of difficulty of breathing I have denominated *uræmic dyspnœa*, a term which I think characterizes it correctly, because I am of the opinion that, like the change in the character of the pulse, it is entirely due to the presence of the poison in the blood, thus acting upon the nervous centres. In this variety of Bright's disease it is by no means uncommon not to find the presence of either albumen or casts in the urine at various periods when it is examined. In this particular affection, the pathological change which takes place in the kidneys is that of cirrhosis, and it is very apt to be associated with a similar process in the liver. In the present instance the cirrhosis of the latter organ, if it exists, has not advanced sufficiently to give rise to any certain evidences of its presence; but it is not at all unlikely that it may have already commenced, from the fact that the man confesses that he was formerly intemperate, though he says he does not drink now.

But why did not this kidney-disease show itself before? It is only five or six weeks since the patient first noticed the swelling of the feet and the puffiness under the eyes, and yet we cannot doubt that the renal trouble must have commenced a much longer time ago than that. In a large proportion of cases of this form of chronic Bright's disease, the pathological process goes on for a very extended period without giving rise to any phenomena to direct the patient's attention to the kidneys, or, indeed, without any symptom whatever, with the exception of more or less headache. In the present instance the man says he has had headache occasionally; but it had never been persistent or severe enough to cause him much inconvenience. In his case there is now a liability to uræmic convulsions, and yet he did not have any symptoms at all until he took cold three months ago, as has been mentioned. Then renal congestion occurred, and presently, as a result of this, there followed the œdema which attracted the patient's notice.

I will venture to say that if this man's urine is carefully examined every night and morning for a week, for albumen and casts, one, or probably both, of them will be detected at some time during that period. Their presence will be the more readily demonstrated, however, if digitalis is first given for the purpose of washing out the detritus from the kidneys. But, in this form of Bright's disease neither albumen nor casts are usually constant in the urine; and hence, in any case where it is suspected, we should never be content with one or two examinations.

This patient should be put upon a rational course of treatment and watched very carefully; for he is, as has been intimated, in great danger of convulsions from the effect of the urea in the blood upon the nervous centres. In the first place, he should be kept in bed for a time, and counter-irritation in the form of wet cups should be applied over the kidneys for the purpose of relieving the congestion existing there. Then he should take or three successive doses of calomel and jalap, ten grains each (the old-fashioned "Ten and Ten," formerly so well known), in order to unload the portal circulation thoroughly; and afterward the same should be repeated every two or three weeks. Next, we should begin with small doses of tincture of chloride of iron, and at the same time keep the patient constantly upon a milk and vegetable diet. Of course, we cannot expect to cure such a patient; but with such a course of treatment as I have indicated, together with great care on his own part and constant watchfulness on that of his physician, we can give him quite a fair chance for the future.

Clinical Records from Private and Hospital Practice.

I.—*Neuro-Retinitis, from Inflammation of the Dura Mater.*

By C. G. Hubbard, M. D., Hornellsville, New York.

Mrs. S., aged 40, consulted me January 5, 1875, for headache. I obtained the following history of the case: In 1858 she first noticed a dimness of vision, which gradually increased until she could barely tell light from darkness. About the same time her head began to be painful. There was a severe pain, increased by pressure over the right parietal bone, at the occipito-parietal articulation. There was a sense of weight over a space about three inches in diameter. Her visual difficulty culminated in total blindness at the birth of her second child, which occurred in the fall of 1858. The blindness continued for twenty-four hours, when the left eye gradually recovered its sight. Her right eye improved until she could distinguish light from darkness, when it remained in that condition. For the past year the pain in the head had increased until it became almost intolerable. She could not yawn without feeling as if her scalp would be torn from her head. Recently there was a tender spot under the left ear. There was an hereditary predisposition to tuberculosis; she could not remain quiet long, and could not sleep. Her right eye was very painful; the external appearance of the eye was normal, but the field of vision was limited in the upper and outer borders. I diagnosed a localized inflammation of the dura mater, which had produced a neuro-retinitis. Ordered the compound tincture of iodine, six drops three times a day. At the end of two weeks there was an iodine eruption of the face; the headache was somewhat better. Ordered the medicine to be discontinued for a week. Within a few days the pain returned with all its severity, upon a slight exposure to cold.

January 26th, 10 A. M.—I was called to see her, and found her suffering from an attack of acute cerebral meningitis, chills, headache, photophobia, and coldness of extremities. Ordered a hot foot-bath, blister to back of neck, bromide of potassium 10 grs. every hour, and gave an active cathartic.

5 P. M.—Patient worse; neither the cathartic nor the blister had acted. Gave croton oil 1 gtt., and repeated blister.

10 P. M.—Bowels had moved three times, and blister had filled, and headache had lessened, but the pulse remained at 120. Ordered the bromide to be given every half-hour until sleep was obtained. She slept from 1 to 2 o'clock A. M.

27th, 9 A. M.—Patient is about the same. Headache still severe. She remained in nearly the same condition until January 29th. The bromide was given as was needed every one or two hours.

29th, 3 P. M.—Patient growing worse, the headache increasing rapidly in severity. Gave a drop of croton oil, and the bromide every half-hour. The oil operated freely.

7 P. M.—Patient is sinking rapidly. Discontinued the bromide and gave quinine, 2 grs. every two hours, and dram-doses of brandy every 15 minutes.

8 P. M.—Patient in collapse, pulseless, unconscious, and unable to swallow. Applied dry heat and friction of the skin for about an hour, when she revived slightly; pulse came back to the wrist feebly, and there was a return of consciousness. The brandy was kept up during the night. After 3 A. M. I increased the stimulants.

30th, 9 A. M.—Patient is sinking again, refused to take the stimulants, bade her family good-by, and turned over to die. After much persuasion, she recommenced taking the brandy, which gradually improved her condition.

From 6 *to* 8 P. M.—She had a number of threatening spasms of the heart. At 8 P. M., her stomach would not tolerate the brandy. I was obliged to rely on beef-tea, which answered every purpose during the night.

31st.—The cold clammy sweat had disappeared, and the skin is more normal.

2 P. M.—Patient is growing weaker, so I commenced administering the brandy, and gave it as needed.

February 1st, 3 P. M.—Headache and sense of fullness returned; ordered a cathartic and a blister back of ears. Both acted thoroughly before midnight. The urine became scanty and high colored, and excoriated the skin with which it came in contact. Applied dry heat over kidneys, which increased the quantity of urine passed, within three hours; during all this time there was an extreme sensitiveness to external irritation. She was intolerant of the slightest sound. Iced cloths were applied to the head, whenever it became hot, until exhaustion supervened, when they were removed. From February 3d she improved fast, and the tenth day of her sickness I pronounced her out of danger. I then gave tr. ferri murias, 10 drops, *ter die.* As she gained in strength, I found that the local pain in the head and the sense of fullness and tightness of the scalp were nearly in the same condition as previous to her acute attack. I then shaved the scalp over the seat of the pain, and applied a blister. It did not fill, although it was very painful. Made another very free application of the acetum cantharidal vesicant with simular results. The head was so hot that the vesicant would dry down into a scab, although poultices were constantly applied. Every day the scalp was thoroughly cleansed and the vesicant applied. Although it failed of producing a blister, yet the sense of fullness and constriction of the scalp gradually lessened. I was giving 5 grs. doses of iod. pot. *ter die.* After failing half a dozen times I finally succeeded in obtaining a blister, which discharged very freely. I repeated it once a week for several weeks.

March 1st.—Put her on the compound tincture of iodine. By March 10th, every unpleasant sensation in her head had passed away, and the right eye had regained the sight so that she could read ordinary print, which she had not been able to do for 17 years. I continued the iod. pot. for a month longer, when I discontinued its use. Her eye and head have remained well ever since (2 years), with the exception of a slight attack of headache during the past summer, which was quickly relieved by a few doses of iodide of potassium. I may say here that her youngest boy suffered for the first six years of his life from chronic hydrocephalus, but the disease entirely subsided under the use of iodide of potassium, 2 grs. every two hours. There are no signs of syphilis in the family.

The practical lessons which I have deduced from this and other experiences are the following:

1. Where it is difficult to make a blister draw, a blister is much needed; the longer a blister discharges—other things being equal—the more good it does.

2. If bromide of potassium be given to relieve the engorged condition of the cerebral vessels, it should be given in large and often-repeated doses.

3. In giving stimulants in exhaustion, give all that is needed without reference to the amount.

4. Dry heat is a powerful stimulant; in collapse it is the sheet-anchor. It will affect an inactive kidney more quickly than any medicine.

5. Iod. potass. has a wonderful power over chronic inflammation of the cerebral meninges.

II.—*Sequel to the Cases of Ovarian Cysts, treated by Electrolysis, and reported August, 1877, in the* New York Medical Journal. By Ephraim Cutter, M. D., Boston.

[Presented to the Gynæcological Society of Boston, July 11, 1878.]

I. *Case of Miss L.*—Soon after the report was made, the tumor refilled. Curiously, an old femoral hernia was enormously distended by fluid in the left side. This was thought to indicate ascites. At last accounts she was lively and in good health, with the exception of the cyst. Ovariotomy absolutely refused.

II. *Case of Mrs. Read.*—This was the one on whom Dr. Semeleder operated himself, with small cells and needle. She was repeatedly electrolyzed, always with signs of relief, and relapse after a time. Should think she was operated on twenty times at least.

On November 15, 1877, Dr. W. G. Wheeler tapped her to relieve the pressure. He withdrew 21 pounds of fluid. The cyst refilled in less than one month, and symptoms of pyæmia set in—chills, fever, vomiting, diarrhœa, abdominal tenderness, legs drawn up, pulse 120, temperature 102°; restlessness, no sleep, patient fearfully nervous. Her condition became so threatening that Dr. Wheeler decided to remove the cyst, in order to save life.

December 16, 1877, ovariotomy was performed by him in the presence of Drs. W. H. Thorndike and G. H. Bixby of Boston, Weeks and Pratt of Chelsea. My telegram failed to reach me.

The cyst contained 16 or 18 pounds of pus and serum. Adhesions were very slight in front. No inflammatory results indicated the sites of the punctures of the peritonæum that had been made for so many times. On the removal of the cyst, the chills, fever, and diarrhœa ceased, and the patient made a most comfortable recovery.

Since operation she has gained 20 pounds in weight; her nervous excitement is gone, and her health is good.

III. *Case of Mrs. Scott. Proved to be fibro-cystic. Death from tapping with an ordinary trocar, in less than fourteen days.*

1878, Feb. 24th.—The tumor returned shortly after her case was reported. At this date she was enormously large, but perfectly well. Abdomen measured 59 inches. The accumulation of fat was great. On palpation a very visible wave was produced, which was not felt. Nodular masses were detected on the right of the umbilicus, and also at the epigastrium. Deep palpation communicated a motion from below upward, but no wave was felt. The impression made at this time was that the tumor was *fibro-cystic* and not *ovarian*, as all but Dr. Wheeler had thought. Certainly, if the case had been seen now for the first time, there would have been no thought of an ovarian cyst. The patient asks for removal by section.

June 1st.—Cyst still growing. Dr. Wheeler made the measurement—64 inches.

2d.—He removed 21 pounds of fluid by tapping. Patient perfectly well otherwise, and was charged to keep quiet. Abdomen was bandaged tight.

After three or four days she began to go about, complaining of a little soreness in the right iliac fossa.

9th.—Seen again. Tympanitis, with pain in the right iliac fossa. Slight fever. Put poultices and counter-irritants over abdomen. Morphia given by the mouth. Absolute rest in bed enjoined.

12th.—Feeling better. Less pain. Up and dressed, and eating supper.

13th.—Violent chills, fever, vomiting. Intense pain over the whole abdomen. Symptoms increased in violence, and death occurred on the 15th.

16th. Autopsy.—Three inches of fat all over the abdomen in front. Peritoneum injected and reddened. Small quantity of serum in the cavity. Gangrenous condition of cyst in front *near puncture*, occupying an area of three inches in diameter. Cyst wall one-eighth of an inch thick, containing fetid pus—hence the pyæmia.

The tumor was fibro-cystic. Its solid portion was eight inches long. It was made up of a matting together of the ovaries, uterus, and cyst walls. Posteriorly there were extensive adhesions. Elsewhere none. There was an old cicatrix at the site of the large parietal abscess, caused by the electrolysis uninsulated needle—but no marks in the cyst.

The uterine cavity measured eight inches in depth, and was very narrow. Other abdominal viscera were normal. Menses had been regular.

Remarks.—This case was interesting because of the mistake in diagnosis, which so many experts shared in. Dr. Wheeler demurred, because he said he had yet to see the first case of ovarian tumor in the negro race; because a simple tapping destroyed life, when it withstood the severe charges of 32 and 12 cells of the Fleming and Talbot battery; because the withdrawn fluid did not coagulate, as it usually does when known to be fibro-cystic. It should be said that the morphology of the fluid was not the same as at first aspiration. There were no Drysdale's ovarian cells, nor Gluge's compound granular cell, nor was there pus.

Dr. Wheeler attributed the bad result somewhat to a want of care on the part of the patient. Again, the os uteri *per vaginam* could not be detected during life. This was due to the uterus being drawn up so high in the pelvis, and the obstacles induced by the immense accumulations of fat. With ovarian disease the os is usually felt.

It is not without some feeling that this sequel is given. It makes sad work with the history of a year ago. In some sense the previous publication is regretted. But it was history; and as earnest seekers after truth, cut where it may, we have felt it our duty to make known the subsequent history. We should prefer to report a permanent cure and the correctness of the primal diagnosis of all these cases. Still, in such serious matters as life and death operations, it should be remembered that their history ends only with life, and that judgment in relation to operative procedures is best based upon the completed histories.

It is also a feeling that there is a bright future for this operation, when its features come to be more fully understood. There is a large and fruitful field in this direction, and the medical profession will do well to take up its study or encourage others so to do. Here is a good subject for the Johns Hopkins school of original medical research. When will the time come when the medical profession will set to work original workers very much as our large machine shops keep skillful inventors at work designing new means, principles, and methods in mechanism?

III.—*Report of the Surgical Cases treated in the St. John's Riverside Hospital, Yonkers, N. Y., during the Years 1874 and 1875 (fifth and sixth years).* By J. H. Pooley, M. D., late Surgeon to the Hospital, now Professor of Surgery in Starling Medical College, Columbus, Ohio.

We have received during the year 1874 71 surgical cases, of all grades of severity, divided as follows, viz.: Abscess, in various situations, 7; fractures of all kinds (not including those of the cranium), 5; contusions and contused wounds, 5; railroad accidents, 5; ulcers, 7; hip-disease, 3; syphilis, 3; necrosis, 3; fracture of cranium, 2; diseases of the eye, 2; wound of the eye, 2; hæmorrhoids, 2; phymosis, 2; sprain, 2; erysipelas facialis, 2; injury to nerves, 1; cellulitis, 1; lacerated wound, 1; gunshot wound, 1; punctured wound, 1; spermatorrhœa, 1; cystitis, chronic, 1; prostatitis, 1; orchitis, 1; stricture of the urethra, 1; erythema nodosum, 1; concussion of spinal cord, 1; epithelioma, 1; congenital union of fingers, 1; burns, 1; traumatic tetanus, 1; caries of sacrum and ilium, 1; paronychia, 1; hypospadias, 1; total, 71.

Of these 71 cases, there have been discharged cured, 43; discharged improved, 9; discharged unimproved, 6; died in hospital, 7; remaining at the end of the year, 6; total, 71.

The operations performed this year, exclusive of those of minor importance, have been fourteen in number, as follows: Amputation of the thigh, 2; amputation, double, of both thighs, 1; amputation of leg, 1; amputation of ankle, Syme's, 1; strabismus, 1; hæmorrhoids, ligature of, 2; circumcision, 2; epithelioma, removal of, 1; eye, enucleation of, 2; for congenital union of fingers, 1; total, 14.

Our operations have not been so successful as usual this year. The double amputation of both thighs proved fatal, we might almost say as a matter of course, from shock; though every effort, including hypodermic injections of whiskey, which really had a surprising effect for a little while, was tried.

Another patient, who had the leg amputated for railroad crushing, subsequently underwent amputation of the thigh for unhealthy inflammation and gangrene, and died finally of pyæmia. A Syme's amputation of the ankle sloughed, and we were obliged to amputate in the leg, from which the patient made an excellent recovery. An operation for the separation of congenitally united fingers, which will be more particularly described further on, also did badly.

In all our amputations this year we have made use of Esmarch's elastic bandage and tourniquet.

The more important and interesting cases of the year, I will now relate without classification, simply taking them up in the order in which they occur in the hospital case-book.

Case I. *Paralysis of the Arm from Injury.*—Martin C., aged thirty, native of Ireland, admitted January 28th. On January 26th, being in a state of intoxication, he fell or was pushed from a high stoop or piazza, and next morning found that his arm hung helpless by his side, and that he had completely lost all power to move it. Owing to his condition at the time of the accident, no information could be obtained as to the manner of his fall or the position of the arm at the time. On examination, no sign of fracture or dislocation, or even of contusion, could be found about the arm or shoulder; but the left arm hung useless by his side, he could not bend the elbow, nor move the fingers; when the arm was elevated and then let go, it dropped like a dead weight. Sensation was diminished, but not abolished. There was no perceptible increase or diminution of temperature in the paralyzed arm, and no alteration in the arterial pulse, or in the appearance of the surface of the limb. The muscles responded freely to electrical stimulus.

He was treated by the electrical current, followed by massage, to the affected limb, together with hypodermic injections of strychnia, commencing with one-thirtieth of a grain, and gradually increasing it till the astonishing dose of one-fourth of a grain hypodermically three times a day was reached.

The toxic effects of these latter doses were very strongly marked, commencing twenty or thirty seconds after the injection, which was always made over the deltoid of the affected side. First, his face and neck would become most intensely red, and covered with perspiration; he would then begin laughing, talking, and acting in a silly, drunken way, and staggered so badly that he could scarcely walk at all; if touched or pinched, he had slight jerking spasms like tetanic seizures; but, if let entirely alone, these spasms did not appear.

All these phenomena passed off in from fifteen to twenty minutes, and the patient returned to his normal condition.

Under this course of treatment he slowly but steadily improved; his general health was perfectly good.

March 5th.—The patient can now flex and extend his fingers, and has considerable power of grasp; he can also bend the elbow, and put his arm in his sling with ease. No power as yet in the deltoid; he cannot move the upper arm at the shoulder. For the last few weeks, he has carried his arm constantly in a sling, as it was found that, by allowing it to hang down, stasis of circulation and swelling occurred.

March 17th.—He was discharged for insubordination and misconduct, very much improved, but not well. Nothing has been seen or heard of him since.

It is much to be regretted that this case could not be followed up, but I have little doubt that he completely or very nearly recovered. Such cases very generally do; and, though this case was one of unusual severity, the progress he was making justifies the hope that, having got a fair start, Nature would do the rest. The injury was undoubtedly to the brachial plexus, but exactly what it consisted in we are not in a condition to say: whether a mere concussion, an actual bruising, or severe stretching of the nerves by forcible abduction of the arm, it is impossible to tell, though I incline to the latter supposition. The complete absence of pain throughout the case is noteworthy, as at least, with returning motion and sensation, there is generally some neuralgia, together with the pricking sensation of pins and needles. Nothing of the kind was observed in this case.

The very large doses of strychnia borne by the patient are very interesting, as also the predominance of symptoms resembling alcoholic intoxication over those more characteristic of strychnia.

These paralyses, from injury to nerve trunks which does not involve their actual division or laceration, are according to my experience generally transient; and, should their persistence be ever so obstinate, we need never despair of a cure as long as there is no absolute degeneration of muscular tissue; and this will be unlikely to happen under appropriate treatment.

In addition to the treatment used in this case, I should think well of the alternating hot and cold douche; but probably any treatment has very little restorative influence over the nerve itself. At most we only keep the muscular apparatus from molecular degeneration pending the recovery of nerve power.

Case II. *Spermatorrhœa.*—A. B., aged twenty-seven, native of Scotland, admitted February 9th. Patient is unmarried, a weaver by occupation, of low intellectual power, slow, stupid, and apathetic, with downcast eyes, slouching gait, and pale, unhealthy, earthy-looking complexion. He has been a victim of spermatorrhœa for several years, brought on by early and excessive masturbation, which he now professes to have abandoned entirely. He has involuntary seminal emissions almost every night of his life, and sometimes several times in one night. He is not at all emaciated, and says his appetite is good, but his muscular strength has failed considerably. He is low-spirited, and broods over his condition a great deal, has almost constant frontal headache, and has had one or two slight epileptic seizures.

This boy had been an *habitué* of my office for two or three years before his admission to the hospital, and almost bothered my life out. I had treated him with all sorts of drugs and combinations of drugs, including everything I could think, hear, or read of, to no purpose. I had also tried the introduction of bougies, plain and medicated, in all sorts of ways; and, as there was a distinctly tender and irritable spot at the membrano-prostatic urethra, I tried the application of nitrate of silver, both in substance by means of Lallemand's *porte-caustique*, and in strong solution with a catheter syringe, all without effect. When admitted to the hospital, he had a small perineal abscess, without any communication with the urethra, which was nearly well. When this healed up I determined to try an operation of my own devising for the relief of the spermatorrhœa. Accordingly, on February 17th, the patient was placed on the table, ether administered, and a perineal incision, similar to that for median lithotomy, was made into the urethra just at the apex of the prostate gland. Through this opening a curved silver tube was introduced into the bladder, and connected with an India-rubber tube, long enough to lead into a vessel by the side of the bed, thus establishing complete drainage of the bladder. The silver tube was provided with a perforated flange or shoulder, by which it could be conveniently fastened in position.

The object of this operation was to lead away the urine directly from the bladder, without allowing it to come in contact with the urethra, which was so sensitive that the mere contact of the urine in making water frequently caused a seminal emission, and always a perceptible shudder.

February 20th.—Patient had a severe chill, with slight hæmorrhage through the tube—there had been almost none at the time of operation; it was immediately withdrawn, and a full dose of quinine and opium administered. He has had no emisssion or threatening of one since the operation; but he states that there have sometimes been intervals of a week or more during which he has had none, when it would return with redoubled violence, "as if" (as the patient expresses it) "to make up for lost time."

27th.—Urine still escaped mainly from the wound in the perinæum; no emissions; patient's appearance much improved.

March 11th.—Had two emissions last night, one with, and one without erection; he looks troubled and anxious, and is of course fearful that all his old troubles are coming back again. From this time till April 1st, when he was discharged, he had no more emissions, and when he left was immensely improved in every way. I have kept watch of him since, and he has continued free from his infirmity. In the fall of 1874 he got married, and performs his conjugal duties to the mutual satisfaction of himself and wife, and continues up to this time, September, 1875, over a year from his discharge from the hospital, in good health.

Of course this case proves nothing, and amounts to very little in any way; and yet the more I think of it, the more it seems to me that this operation affords some prospect of relief in similar obstinate cases of the kind. The tube in this case was withdrawn very abruptly, probably nunecessarily so, for I now feel that I was unduly alarmed by the chill and the bleeding which came on. No doubt the tube was too large, particularly too long, and too straight, and produced irritation by coming in contact with the wall of the bladder; if it were made a little shorter and more curved, there would be less danger of this, and no doubt it might be worn for a considerable time, and thus the hyper-sensibility of the urethra, constantly provoked and excited by the contact of urine, might be recovered from. One thing is to be taken into account in judging of such a case, and that is that any operative procedure which strongly impresses the mind is apt to produce a temporary amendment from the moral effect; however, either this or the real benefit of the operation did our patient so much good that he plucked up courage enough to get married, and that completed the cure.

Case III. *Epithelioma.*—Aaron L., aged sixty-one, native of the United States, admitted April 25th. He has an extensive epithelioma, involving a large part of both lids of the right eye. It began two or three years previously as a small dark-colored wart or mole at the outer canthus. He can give no account of any similar disease in any member of his family; but then he has led a very wandering life for many years, and knows very little about his family, or anything else.

The growth at present involves the whole of the lower eyelid, and at the outer canthus extends beyond it both downward and outward, encroaching upon the cheek. The outer half of the upper lid is also involved in the disease. The lower conjunctival *cul de sac* is entirely occupied by the new growth, and so changed and indurated in structure that the eye was completely fixed, and incapable of the slightest motion; the lower portion of the cornea is also infiltrated with the disease.

His general health is excellent, surprisingly so considering the irregularities and hardships of his life.

April 27th.—The patient was etherized and the following operation performed: An incision was carried all around the diseased part, which was thoroughly removed down to the bone, including every portion which was exterior to the orbit. An attempt was now made to clean out all the diseased tissue in the orbit without interfering with the eye or the ocular muscles; but, as this was found to be impossible, and as the cornea was already infiltrated to some extent, the eye was removed and the orbit then completely cleared of all suspicious-looking tissue. There was now a very large and formidable-looking wound left, and, as there was no eye to be protected by the formation of new lids, the following method of uniting the wound, and covering the empty orbit, was adopted.

A subcutaneous dissection, or loosening of the tissues from the bone, was carried for some distance up on to the forehead, and downward upon the cheek, which enabled the cut surfaces above and below to be brought together without stretching, and they were united by silver-wire and silk sutures, thus forming a complete integumentary covering over the orbit; lint and a gently-compressive bandage completed the dressing.

30th.—The silver-wire sutures toward the outer canthus are much on the stretch from swelling, and will probably cut through. Two of the silk sutures have cut through, but the cut surfaces still lie in contact. Tears from the lachrymal gland, which was not removed, ooze now and then from the inner canthus; patient feels well, and only complains of a slight headache.

May 2d.—All the sutures have come away, but the wound only gapes to a very slight extent.

3d.—Granulations are beginning to make their appearance in the wound, which is open to some extent at the outer canthus.

10th.—Since the last report, the patient has been taking out-door exercise and iron, the good effects of which are very perceptible in the increased activity of the healing process; the open wound at the outer canthus is nearly well, and the discharge from the cavity of the orbit has about ceased.

26th.—Discharged cured, wound entirely healed, orbit completely covered, and, at a little distance, only looks as though the eye were shut, or the lid drooped from ptosis.

The result of this operation was in all respects satisfactory. To be sure, it scarcely deserves to be dignified with the title of a plastic operation; but so extensive was the surface exposed, and so difficult would any proceeding for the formation of new lids have been, that, considering there was no eye to be protected, it was not thought worth while to attempt it.

If the whole wound, with the empty and denuded orbit, without even a conjunctival stump, had been left uncovered, the healing must necessarily have been very slow, and the result hideous; while now, with an appearance scarcely repulsive, there is no inconvenience from the exposure of the orbital cavity. Whether it is that all organs no longer useful cease to perform their functions, there has been no trouble from the lachrymal secretion, which seems fast disappearing altogether. I do not know whether the method adopted in this case is a novelty or not; at any rate, I had never heard of it before.

Case IV. *Congenital Union of Fingers.*—Thomas E. B., aged 16, native of United States. Admitted May 20th. He was the subject of congenital fusion or union of the phalanges or digits of both hands and feet. As one hand as well as foot is an almost exact duplicate of the other, a description of one will suffice for an understanding of both.

Taking, then, the right hand, we find the following peculiarities: Dorsal aspect. 1. The ring and middle fingers are entirely united from their commissure to their extremities. While normally the middle finger projects somewhat beyond the index and ring fingers, in this case it is not so, as the extremities of the united fingers are on a level with each other, being made so by their close union, and yet the middle finger is of its normal length. It is therefore curved, with its convexity outward on the back of the hand, where it rises or projects above its neighbors; and it is plain that, if the unnatural connection were severed, it would project beyond the digit on either side of it, as in a normal hand.

The line of union is perfectly even with the dorsum of the hand, except where the knuckle of the middle finger rises above its neighbor. The thickness of the union is equal to the thickness of the fingers themselves; it is not a web. The two nails seem to arise from one matrix; they lie deeply imbedded in the skin; the line of their junction is marked by a sulcus or depression.

All along the terminal or ungual phalanx the union is very firm, apparently bony.

2. The commissure between the index and middle fingers extends as far as the first phalangeal articulation, forming a long web between these two fingers. Originally they were joined together like the two fingers already described, and the remaining web is the result of a partially successful operation performed in infancy. The little finger is normal in every respect.

Between the thumb and the index there is a thick web, extending as far as the middle of the first phalanx of the thumb. A cicatrix here shows the trace of a partial attempt to separate what was a complete union, performed at the same time as the operation already referred to, and even less successful in result.

The whole palmar surface presents a deep cup-shaped hollow or depression, from the bending of the united digits already referred to. The skin of the palm is thick and hardened. The feet present the same kind of deformity, but not in so marked a form as the hands; and, as they do not interfere with locomotion, are of no practical interest to us as surgeons, as they demand no treatment. Considering the difficulty in keeping apart the surfaces of united digits after their separation, the previous unsuccessful attempts made in this case, and the extensive nature of the attachment, I determined to proceed in a different way, to make a flap from the dorsal surface of one finger and the palmar surface of the other respectively, and fold them over so that each covered the raw surface of the other finger.

This operation is described in "Annandale on Malformations of the Fingers and Toes," and Erichsen barely alludes to it in his "System of Surgery," and gives a diagram of the proceeding.

This operation proved in every way unsatisfactory. It was much more difficult in the performance than had been anticipated, and the result was an utter and disastrous failure.

It was performed on May 20th, as follows: An incision was made along the centre of the dorsal surface of the middle finger, from one end to the other, and a flap, including integument and subcutaneous tissue, dissected laterally as far as the middle of the ring-finger. Another and similar incision was made on the palmar surface of the ring-finger, and the flap dissected half-way across the middle finger. The flaps were then held back, and the remaining tissue, forming the bond of union between the two fingers, divided. This union was found at the ungual extremity to be osseous.

The flaps were then adjusted, that dissected from the dorsum of the middle finger being wrapped around the palmar surface of the ring-finger, and *vice versa.*

They did not by any means adapt themselves as had been expected. The flap raised from the dorsum could be made to touch the line of integument on the palmar surface of the other finger by some stretching; but the palmar flap, being tough, thick, and inextensible, could not be made to meet by fully a quarter of an inch. The edges, however, were brought together as well as possible, and a simple dressing of lint applied to the first. A piece of rubber tubing was then passed through the septum between the middle and index fingers, about half an inch above the normal commissure, and attached to a band around the wrist, to establish a permanent opening, to establish a basis for future proceedings on the thick web remaining here from a previous operation.

May 22d.—Patient doing badly; he is very gloomy and despondent, there has been a great deal of pain since the operation, and there is an undue amount of heat and swelling.

June 9th.—Since the last entry the fingers have been going on from bad to worse. No healing took place anywhere, but everything sloughed and sloughed, until at one time it looked as though the boy would lose his hand. To-day the second and third phalangeal bones of the middle and ring fingers were removed, as they only hung by shreds of necrotic tissue. The attempt to make useful fingers out of useless ones has of course now failed, and the only thing left to do is to prevent further sloughing and save the hand.

20th.—The healing process has been going on slowly since the last report, and the wound now presents a healthy appearance, and but a small surface remains to heal over. Patient meantime has been kept on iron and nutritious food.

The hand is more deformed and useless than before the operation, the first phalanges which remain have reunited, and there remains a short, awkward-looking stump, between the index and little fingers, which perhaps would be better removed, but the patient says he has had enough of surgery for the present. He was discharged July 4th.

The miserable result of this case was a bitter disappointment to me. The operation, studied in description and diagram, seemed so promising, and the results of mere division in these cases, as proved in the history of this very one, are ordinarily so unsatisfactory, that I had no hesitation in undertaking a proceeding that seemed easy and certain to succeed. But the inextensible nature of the integument, its close connection to the parts beneath, and the exposure of the sheaths of the tendons for a considerable distance, proved to be the practical obstacles to these flattering anticipations.

From the experience gained in this case I must say I do not think the operation is one to be recommended, and I should never undertake it again. Division of the junction merely, with rigid attention to the dressing, even if it sometimes yields very imperfect results, is far better than running such risks as the entire destruction of the fingers, or even the hand. Of course that commoner class of cases where there is merely a thin web of skin are comparatively easy to deal with.

CASE V. *Extensive Burns; Tetanus, Cure.*—Fritz Ranau, aged 21, German, admitted August 19th. The day previous to his admission he was working in a sugar refinery, and, in walking past a large vat of boiling sugar or syrup, tripped and fell into it up to his waist. He quickly got out again, but not before being terribly scalded by the boiling fluid. Both legs were very badly scalded, the epidermis removed, and the parts raw and weeping, penis and scrotum badly scalded and greatly swollen; burned patches of various extent on the back, sides, and belly; the upper part of the body escaped. A liniment consisting of one part carbolic acid to six of olive oil was applied freely to all the burned parts; half a grain of morphine ordered at bedtime.

August 22d.—Very free purulent discharge from all the burned surfaces, of intensely disagreeable odor. Patient suffers severely, particularly when the burns are dressed.

September 1st.—In many places the burns are seen to have involved the tissues much deeper than the epidermis, the whole skin having sloughed away, leaving ulcerated surfaces, taken altogether of great extent, which are granulating healthily. A large amount of pus is discharged daily, and the patient begins to look pulled down, and worn out by suffering and discharge. At this time as he lay in bed, just before the customary time of dressing, he was almost swimming in pus, and, as the worst burns are on the posterior surfaces, his condition, as he lies constantly on his back, is deplorable in the extreme. The experiment was tried of putting him in a warm bath, but it only subserved the purposes of cleanliness, for he could not remain in it long enough to derive any other advantage; indeed on the first occasion he fainted at the expiration of a few minutes. The plan was now tried of powdering over the profusely suppurating surfaces with flour and oxide of zinc in fine powder, equal parts; this seemed to afford comfort to the parts and diminished the discharge somewhat.

10th.—Patient lies on his belly part of the day, and in this way affords a better chance for the healing of the posterior parts of the thighs and legs, where the burns are most severe. Impure carbonate of zinc (calamine) in fine powder, substituted for the oxide, seems to be rather more drying and absorbent.

The right limb, from the foot to the thigh, is nearly of its normal size, a little swollen, while the left leg, which was the most deeply and severely burned, from the foot to the thigh and buttock, is very much shrunken and atrophied; at the buttock, the glutei muscles especially have atrophied, and give the appearance of great wasting when compared with the right gluteal region.

The burns, however, are doing quite well, and, in spots here and there, are drying up and cicatrizing. Patient's appetite is good, but he complained this morning of nausea, and a tendency to vomit after eating. For a few days, diminution of appetite, furred tongue, constipation, and restlessness at night, gave notice that something was coming, but what we could not tell.

A purgative was ordered, and chloral at bed-time to procure sleep, which acted well.

15th.—Night before last, patient was given chloral hydrate ℈j, at bedtime; this did not procure sleep, and he was wakeful, and in a condition of undefined excitement all night. In the morning he was restless, though in a half-dozing condition, with occasional fits of starting with expression of terror, as if from nightmare.

Upon further observation, occasional spasmodic contractions of the platysma and the muscles of the jaw and face were noticed, with some fixation of the jaws (trismus). This morning he has difficulty in opening his mouth, which he cannot do fully, and complains of sudden pains shooting all through him.

Every now and then the muscles of the limbs and trunk undergo sudden and painful contractions; in short, the unfortunate man has traumatic tetanus. He was ordered 10 drops of a saturated tincture of Calabar bean every hour; and to take beef-tea, wine, and milk-punch as freely as possible. The burns are looking much better, and in many places are healing quite rapidly.

16th.—Was wildly delirious all last night; tetanus has not increased; of his tincture of physostigma, which was ordered to be gradually increased, he now takes 25 drops every hour.

17th.—Right leg flexed spasmodically upon the thigh, flexor tendons rigid and unyielding; takes 30 drops of the Calabar tincture every hour; ordered for his delirium and general restlessness the following prescription in addition:

Chloral hydr., pot. bromidi, ℥j, aqua ℥iv; dessertspoonful every three hours. Tetanic spasms do not increase, but the patient's appearance is that of one nearly worn out with sleeplessness and suffering.

18th.—Had a good and calm sleep nearly all day, and woke up toward night feeling very much refreshed. During this sleep there were no tetanic manifestations, patient lay perfectly quiet; muscles, except of the contracted leg, relaxed.

19th.—He was put in a warm bath this morning, and spoke gratefully of the sense of relief it gave him. He could not remain in the bath more than an hour, as he said it made his burnt legs very painful, after he had been in it nearly half that time. Last night he had a good sleep. Sores continued to discharge a great deal.

20th.—Remained in the warm bath an hour and a half to-day with apparent benefit. Tetanus has become much better, paroxysms not very frequent. Has been gradually diminishing his Calabar bean tincture, and now takes 30 drops only every three hours.

26th.—Since the last date, the patient has been doing pretty well, the burns are gradually drying up; scarcely ever has a tetanic spasm, except when roughly touched, but one can be brought on at any time by a thrust or punch in the ribs or back; in this respect his condition resembles that of an artificially tetanized frog. Every afternoon he has an attack of mild delirium, which sometimes lasts through the night. The burns are now dressed alternately with a solution of ferri sulph. and Turner's cerate. Takes a half a teaspoonful of tincture of Calabar bean, three times a day; has occasionally a watery diarrhœa.

29th.—Relapse. While in the bath this morning, he was seized with a tetanic spasm, with marked and severe opisthotonos, which lasted for fifteen minutes after he was got back to bed. A fresh preparation of Calabar bean was made after the following formula: Extract physostigma, 32 grs., alcohol dilut. ℥j; of this he was to have 45 drops, equal to three grains of the extract, every two hours. By afternoon the spasm had once more subsided, and the patient was quite comfortable.

October 1st.—During the afternoon he was seized with a terrible spasm, which lasted for two hours. The dose of the Calabar tincture last mentioned was increased to 60 drops every hour. Tetanus subsided, but he was more or less delirious all day.

2d.—Better this morning, no return of spasms, appetite good, continues tincture same as yesterday.

4th.—All symptoms of tetanus having entirely subsided, the dose of the Calabar tincture was diminished to 30 drops three times a day. Patient very comfortable, sits up in bed, reading a considerable part of the day.

9th.—Patient improving rapidly, is lifted out of bed and placed in a chair during the forenoon; sores now confined to localized spots on both limbs, but somewhat deeper on the left leg; dressed with Turner's cerate. The right leg, which became permanently flexed at the very outset of his tetanic symptoms, has continued so ever since, and, now that all symptoms of tetanus have been absent for some time, remains rigidly fixed in a semi-flexed position.

13th.—The patient was placed under ether, and the contracted leg was forcibly extended; it yielded with difficulty, and bands of adhesion could be both felt and heard to give way. Any tendency to recontraction was to be met by manual extension, any apparatus for the purpose being inadmissible, from the remaining sores and the tenderness of the new cicatricial tissue.

He was discharged from the hospital in the latter part of December. The power of Calabar bean to control tetanus in this case amounted to a demonstration. When it was freely given, the spasms ceased; when it was too soon discontinued, they recurred, to be again subdued by its administration with absolute certainty.

In a case reported the previous year, though it terminated fatally, the power of the remedy was also perfectly obvious; and I believe, if we had had the case under treatment from the beginning, we should have cured it. I have, since coming to the West, tested the remedy with perfect success. How can I then help believing that Calabar bean is the proper physiological remedy for tetanus? But I am convinced that it will never be appreciated at its true value until it is given much more freely than it generally is at present. It has produced delirium in every case where I have administered it in large doses, and in one case double vision; these are the only bad effects I have seen from it, and I have given four grains of a solid extract and nearly a teaspoonful of a fluid extract every hour. Of course I would not begin in any case with such doses, owing to possible variations in activity in different preparations, and to different susceptibility in the patient; but I would rapidly and watchfully increase the dose until I had control of the disease, or some grave symptom attributable to the drug warned me to stop. So far nothing of the latter kind has occurred.

Case VI. *Sacro-Iliac Disease.*—Minnie Curran, aged 5, United States, admitted October 13th. A year ago last June she fell from a pile of lumber, nearly eight feet high, on some stones, and hurt her back low down, over the sacrum. It was tender to the touch and on movement. She lay in bed two days, and when she began to walk she dragged her left leg. She seemed to improve till about Christmas, when she got so bad that she could not walk at all.

Soon after New-Year's, 1874, she again began to get about, walking stiffly, with her body bent forward. Six weeks before admission, her mother noticed a discolored swelling over the sacral region, which broke in about a month, discharged profusely, and had an offensive odor. The mother thinks the odor was feculent, and one day a small piece of bone was discharged. The child's principal complaint was of pain in the bowels, for which her mother gave her gin, of which she became very fond; would drink large quantities for a child, and then go to sleep. The patient when admitted was a complete cripple, unable to walk or stand. There was a sinus over the upper part of the left sacro-iliac symphysis, discharging unhealthy pus. Lordosis, or bending in of the spinal column, very strongly marked; the child is most comfortable when lying on her belly, and assumes this position most of the time.

The examination of the sinus, with a probe, failed to detect dead bone. The child is very pale, emaciated, and weak. No albumen in the urine. Apparently there is a communication of the sinus with the rectum, as bubbles of gas have been seen escaping from it. Ordered iron and cod-liver-oil.

November 13th.—Patient has remained in very much the same condition ever since the date of her admission, one month ago. A careful examination, made to-day, found the sinus in the back somewhat larger than it was a month since, and communicating with deeper sinuses, one of them running down toward the coccyx.

On probing carefully through this, the probe passed easily into the rectum, and could be brought out through the anus, thus establishing the facts of a fistulous communication between the sinus in the back and the rectum below. Also ascertained that some pus is discharged through the rectum.

Some time subsequently two small circumscribed abscesses made their appearance lower down, one over the coccyx, one over the gluteal region, apparently caused by the lodgment of feculent particles.

These on being opened gave exit to a little pus, feculent matter, and offensive gas. At different times since, the fæces have been discharged very freely from these openings, and on one occasion a small piece of bone.

The child improved very much in appearance, and in general health. She suffered no pain after the first week or two, and got quite fat and cheerful. She remained in the hospital without any marked change at the time of my leaving, nearly a year from the date of her admission.

Since then I have met with two cases of disease of the bones of the pelvis, whether commencing in the sacro-iliac joint or not could not be ascertained, in which there was fistulous communication with the rectum.

REPORT FOR 1875 (*sixth year*).

Up to the time of my ceasing my connection with the hospital in October of this year, there were thirty-four cases received, as follows:

Fractures of all kinds	9
Dislocations	2
Morbus Coxalgia	3
Lacerated Wounds	2
Contused "	2
Railroad Accidents	3
Syphilis	1
Orchitis	1
Bubo	1
Necrosis of Tibia	1
Keratitis	1
Sprain	1
Enlarged Prostate	1
Necrosis of Jaw	1
Onychia Maligna	1
Laceration of Urethra	1
Cancer of Rectum	1
Abscess	1
Abscess of Bone	1
Total	34

Of these thirty-four cases there were

Discharged Cured	20
" Improved	4
" Unimproved	5
Died in Hospital	3
Remaining	2
Total	34

Operations five, as follows:

Amputation of Leg	1
" Part of Hand	1
Removal of Epithelioma of Rectum	1
Necrosis of Tibia	1
Opening Bone Abscess	1
Total	5

Several of the cases which were of more than usual interest will now be related, in the order of their occurrence on the hospital case-book.

Case I. *Laceration of the Rectum.*—John Rogers, aged 38, Ireland, admitted April 10th. While working under an embankment, it gave way, and a large mass of earth and stones struck him upon the abdomen, the principal force of the blow falling upon the left side low down. When the mass was removed, it was principally weighing upon his left thigh, which proved, subsequently, to have sustained a comminuted fracture about its middle. There were a few well-marked contusions along Poupart's ligament, and much discoloration from effused blood. No other marks of injury were found.

The man was in a condition of extreme shock when brought to the hospital, an hour after the accident; he had a thready, almost imperceptible pulse, beating 140 per minute, extremities cool, and face of a ghastly pallor.

He was placed in bed, his broken limb simply made comfortable by sand-bags on either side, hot cloths over seat of fracture; an ounce of whiskey, with ten grains of sulph. quinine in solution, administered, which he almost immediately vomited up. We then gave him whiskey in carbonic-acid water and ice, a tablespoonful at a time frequently repeated for two hours, after which his stomach rejected this also.

His pulse meantime remained the same, and he complained of a restless, sickening, and helpless feeling all over. Brandy and sherry wine were then tried, one after the other, as stimulants, but were each in turn rejected by the stomach. The swelling over the seat of fracture increased, and extended upward over Poupart's ligament. Patient now complained of pain on pressure over the abdomen, especially in the neighborhood of the left iliac fossa. Prescribed a mixture containing carbonate of ammon. and tinct. opii, of which he was to take a teaspoonful every half-hour till some impression was produced.

The patient retained this, and apparently with some good effect, as he grew more quiet and complained less of pain. But his pulse did not change, remaining weak and thready, at 140, and his extremities and general surface grew cooler. He had a great desire to defecate, but could not. Every few minutes he would ask for the bed-pan and make fruitless efforts to have a stool, tormenting himself and the attendants to no purpose.

Bladder remained empty. In spite of all efforts to rally him, he sank and died quietly, 3.30 P. M., April 11th.

Post-mortem.—This was very incomplete and imperfect, owing to interruptions from relatives of deceased. Sufficient was seen, however, to show the mode of death, and add to the interest of the case.

On opening the abdomen, it was found half filled with blood; and, upon looking for the source of the hæmorrhage, there was found a rent or laceration of the mesentery at about the middle of the small intestine. There was a large transverse rent about the middle of the rectum, nearly tearing it across. The large intestine above was full of fæces. The most interesting feature of this case was the constant and unavailing effort to defecate, which under similar circumstances I should regard as diagnostic of rupture of the rectum.

CASE II. *Epithelial Cancer of the Rectum.*—Albert L., aged 53, German, admitted May 31st, an operation for the removal of the growth having been performed some time before at his residence.

I first saw him April 8, 1875, in consultation with Dr. A.

C. Benedict. He was a thin, pale, cachectic-looking man, somewhat below the average height, and of thin frame; his mother died of cancer; family history otherwise good; until the beginning of his present trouble enjoyed tolerable health, though he was far from strong.

The disease in his rectum began about a year before, during most of which time he has been under the care of a physician in New York, who treated him with salves, etc.

When he came under the care of Dr. Benedict, about a month before I saw him, there was a linear ulcer on the side of the anus, which the doctor took for ordinary fissure, and treated accordingly by stretching the sphincter, and, subsequently, with applications of nitrate of silver; but as, instead of getting better, it was spreading rather rapidly, I was asked to see it.

I found on the right side of the anus, and posteriorly, toward the coccyx, an irregularly-quadrangular sore, with elevated edges, somewhat hard, purplish in hue, not undermined, surface covered with large flat-topped skin-like granulations, exuding a thin scanty discharge. The portion of this sore visible outside was nearly as large as a silver dollar; it also extended some distance inside the rectum, but how far could not be made out, as he was so sensitive that he could not even bear the introduction of a speculum.

April 10th.—He was put under the influence of ether, and, the rectum being explored with Sims's speculum, the internal extent of the disease was found to be considerable, occupying the right side of the rectum, and extending upward nearly three inches.

He complained of a good deal of pain in the sore, especially when he has a passage from the bowels. A small piece was shaved off the surface for microscopical examination, and showed it to be epithelioma. I advised removal of the growth, which was performed April 17th.

He was etherized, placed on a table on his right side, in a good light, and the left, or, as he lay, upper side of the rectum forcibly elevated by the larger blade of a Sims's speculum, held by an assistant. I circumscribed the external portion of the growth with a scalpel, and dissected it up with the whole thickness of the skin as far as the sphincter; the rest of the growth was easily removed with curved scissors, being very much facilitated by dragging down on the external portion already detached; indeed this part of the proceeding was very much easier than I had anticipated. The hæmorrhage was slight; only one small artery required ligature. The wound was stuffed with styptic cotton, a T-bandage applied, and the patient put to bed.

A mixture of equal parts of tinct. opii and tinct. catechu was ordered, to relieve pain and constipate the bowels, which previous to the operation had been freely cleaned out, both with castor-oil and an injection. The growth showed on examination that it had been thoroughly removed, as there was a margin of healthy tissues all around it.

The patient improved very well for a time; the wound partially healed, it became free from pain, and he had none of his old pains in defecating, but his general health steadily declined. He began to cough, emaciated rapidly, and became hectic. He died in the hospital June 21st.

Post-mortem.—Brain: some serum in the ventricles; slight congestion of the arachnoid. Thorax: heart normal; pericardium contains some serum; left lung healthy; right lung in a state of tuberculosis, thick and cretaceous deposit scattered throughout its substance, several cavities of various size, pleura very much thickened, firm and leathery, strongly adherent to the thoracic wall. Abdominal cavity: liver enlarged and congested; intestines healthy; left kidney normal; right very much enlarged, three or four times its natural size, capsule strongly adherent. A section of the organ revealed a large cavity containing pus, and cheesy and tuberculous masses; the kidney-structure being entirely destroyed, the pus and tuberculous matter extended down the ureter to the bladder.

The ureter was also three or four times its natural size, and completely filled with this tuberculo-purulent mass.

Case III. *Bone Abscess.*—Mary C., aged 11, United States, admitted September 20th. This little patient has been a sufferer from a lame and painful foot for over a year. She can give no account of its cause, or how it began, but only remembers that for a year it has been swollen and painful.

The left foot is the one affected. Over the metatarsal bone of the great toe is a red, swollen, and painful intumescence, looking at one point as if about to break.

She made no motion of the toe without great pain. The diagnosis arrived at was abscess in the metatarsal bone of the great toe, with perhaps an opening into the joint.

On the following day she was etherized, Esmarch's bandage applied, and a free incision made over the swelling in the long axis of the bone; as not a drop of blood escaped, everything about the joint could be plainly observed. As had been predicted, a large abscess in the head of the metatarsal bone was found, which communicated with the joint. The bone was disarticulated at the phalangeal articulation, and sawn off about its middle. The wound was dressed from the bottom, and the foot bandaged.

September 25th.—Removed the bandage, found the wound looking well, dressed with lint soaked in carbolized oil. Ac. carbolici, ʒj, ol. olivæ, ℥j.

November 6th.—Discharged cured. The wound granulated nicely from the bottom. There was some shortening of the toe, but the patient had no perceptible limp.

Notes of Hospital Practice.

CHARITY HOSPITAL.

Leprosy.—There are in hospital at the present time two cases of leprosy, each one presenting the characteristics of different forms of the disease, but neither can be considered typical of *tubercular* or of *anœsthetic leprosy.* The first patient is a negro, nineteen years of age. He was born near Santiago, Cuba, where leprosy was of common occurrence. When quite young he came to the United States, and up to that time and for some years afterward he was completely free from any evidences of the disease. The first symptoms noticeable were the formation of tubercles on the face, with pain in the different joints. Three years ago he entered this hospital with a marked tubercular condition of the face, but in a short time left, considerably improved in appearance. Since that time the disease returned, and during July, 1878, he reëntered hospital.

The appearance of the face has apparently been so changed by the tubercular formation that the original expression must be in great part if not completely lost. There is no hair on the eyebrows. The nose has a knotted appearance. The lips are much thickened with tubercular elevations. The mucous membranes are not affected. The fingers are normal, but at points there seem to be commencing tubercles. The hair of the head remains unchanged. The general condition of the patient is good, with the exception of pains in the joints. There are no evidences of synovitis.

The second patient is in a lamentable condition, and exhibits the *anæsthetic* form of leprosy complicated with the *tubercular*. He is a man about forty years of age, and states that he lived in Baltimore, but never was exposed to the disease. The first symptoms appeared six months ago, when he noticed that his face became discolored and tubercular. Shortly afterward the hands and feet became affected in a manner similar to the face. On admission to hospital the face presents in many respects the condition of the previous patient. The ears have lost their normal contour, and resemble keloid tumors. The fingers are enlarged, but not nodular, and present evidences of former ulceration. The nails are replaced by crusts. The feet are very much enlarged, and extensively ulcerated. The ulceration is confined principally to the extremities of the toes. The general state of the patient is not unfavorable. The condition of the feet confines him to his chair. There is not much emaciation. The mixed form of the disease exhibited in the patient is reported to occur in India in fifteen per cent. of the cases, and is considered rare after forty years of age. Both cases are under observation in the dermatological ward, as the disease is not considered contagious.

BELLEVUE HOSPITAL.

Popliteal Aneurism; Treatment by Shot-bag; Cure.—Two cases of popliteal aneurism have recently been treated by means of the suspended shot-bag. Both were cured with but little discomfort. The method practised was described by Dr. Martin Burke in the JOURNAL for June, 1877, page 623. He reported at that time three cases treated at Bellevue Hospital, and in each of them a cure was established. It was found in one of the cases recently under observation that pulsation ceased two and a half days after the shot-bag was placed in position. It was removed after being used for four days. The patient was discharged, cured, in three weeks.

Epithelioma of Rectum; Extirpation.—A man was admitted to hospital suffering from epithelioma of the rectum. It completely surrounded the anus, and extended upward for an inch and a half. It was determined to extirpate it by the usual operation. An incision was carried around the anus, below the seat of disease, and the mass separated. The rectum was then drawn down, and a sufficient amount amputated. The healthy rectum was finally stitched to the healthy skin. The patient did well for a time, but after eight months the disease had returned to such an extent that a second operation was performed. The epithelioma recurred shortly afterward, and a third time it was removed. The period between the second and third operations was four months.

The patient at last accounts was doing well, with no symptoms of recurrence.

Epithelioma of Rectum.—A case of epithelioma, more extensive than the one just recorded, is now in the wards. The disease extends up for three inches, and forms a stricture. At the present time bougies are being employed to try what benefit will follow the dilatation of the rectum.

MOUNT SINAI HOSPITAL.

Fracture of Anatomical Neck of the Humerus.—An interesting case of fracture of the anatomical neck of the humerus is under the care of Dr. B. M. Feldman, house-surgeon, the important feature in connection with it being that the head of the humerus did not act as a foreign body, but united with the shaft to give a good result.

The patient was a man aged thirty-four, and received the fracture by falling into a cellar. The case was treated by placing a pad in the axilla, and securing the arm to the side. After five weeks the dressing was taken down, and it was found that union had not taken place. The dressing was reapplied, and on examination after three weeks there was noticed consolidation.

Removal of Epithelioma of Penis by Galvano-Cautery.—A patient entered hospital with an epithelioma of the penis, of eight months' standing. Amputation was performed by means of the galvano-cautery. There was no hæmorrhage. The stricture which formed at the artificial meatus was dilated by bougies.

PRESBYTERIAN HOSPITAL.

Penetrating Gun-shot Wound of Right Chest; Recovery.—A man, aged eighteen, shot himself through the right lung, and was transferred to hospital. On examination it was found that the bullet had entered about an inch to the outer side of the right nipple, and emerged near the seventh dorsal vertebra. The patient remained in a state of shock for six hours. When reaction set in the temperature ran up to 103°, and shortly afterward symptoms of pneumonia were discovered. This complication ran a favorable course without developing pleurisy or empyema, and after two weeks the patient was able to go about the ward.

Gun-shot Wound of Left Chest; Recovery.—A man, aged twenty-one, was admitted to hospital, suffering from gun-shot wound of left chest. As in the previous case, it was the result of intended suicide. The bullet entered to the outer side of the heart, and barely escaped that organ. There was considerable hæmorrhage following the injury. The shock lasted for thirteen hours, and was followed by pneumonia of the whole of the left lung. The patient was discharged from hospital after three weeks. There was considerable emphysema around the wound, but empyema did not occur.

Bibliographical and Literary Notes.

Hand-book of Ophthalmology. By Prof. C. Schweigger, of the University of Berlin. Translated from the third German edition by Porter Farley, M.D., Rochester, N. Y. Philadelphia: J. B. Lippincott & Co., 1878.

Those interested in this subject are already familiar with Prof. Schweigger's book in the German; but, to such as are not acquainted with this language, the English translation will be very welcome.

The book is very conveniently divided into three parts. Part I. treats of the refraction, accommodation, and mobility of the eye, and occupies about one-third of the volume. These subjects are very fully and ably discussed, but the chapter on the ophthalmoscope we must consider as deficient. The value of the ophthalmoscope in the determination of the refraction does not receive that consideration which the subject deserves, and no mention is made of the modifications of the instrument especially devised for this purpose.

While the chapter on mobility is good, in the main, we must object to the method of operating for squint which is recommended. The author operates by exposing the muscle freely, then seizing it by a pair of forceps and dividing it with the scissors. This method, he says, is better than the sub-conjunctival one recommended by Graefe. We think, on the contrary, that the sub-conjunctival method is far the best, and quite as easy to perform as the other. In the description of the operation for advancement of the internal rectus, no mention is made of Agnew's method of operating—which omission, as well as the systematic ignoring of any mention of American authorities, is particularly significant in

Prof. Schweigger's book, as he was for some time in New York, and received a good deal of attention from ophthalmologists.

Part II. treats of diseases of the orbit, lachrymal apparatus, lids, conjunctiva, cornea, sclera, iris, lens, and vitreous body. The first chapter, which is on affections of the orbit, is particularly good, and, although short, contains a great deal of information. In speaking of lachrymal fistulæ, the method of closing them by galvano-cautery, which has been described by Samuelsohn, of Cologne, is not mentioned. The writer has put this method in practice in two cases, one a case of acquired, the other of congenital fistula, with excellent results.

It is stated that pterygia hardly ever encroach enough upon the pupil to affect the sight. This may be true in his field of observation, but here they cannot be said to be so obliging, for they often do. We are surprised, too, at the statement: "If the pupillary region of the cornea be covered by the pterygium, the operation of iridectomy affords a good prospect for improving vision." So it does to remove the pterygium, which would be far preferable.

Part III. describes in a special chapter the normal appearances of the background of the eye, and diseases of the choroid, of the retina, and of the optic nerve—glaucoma and amblyopia.

Prof. Schweigger's book will hardly supply the demands of a text-book for students and practitioners. There are but few illustrations, and no detailed description of the anatomy of the eye, which are essential in a text-book. But as a book of reference and interest to those who have given some attention to the subject, and are acquainted with its rudiments, it must be considered as a very valuable addition to ophthalmological literature.

The author's style, unlike that of so many German authors, is very concise and clear.

Dr. Farley's translation deserves special praise, and, while we have noticed occasional awkward expressions, they are so few in number that we leave others to find them for themselves.

Books and Pamphlets Received.—Transactions of the Medical and Chirurgical Faculty of the State of Maryland, Eighteenth Annual Session, held at Baltimore, April, 1878.

Medico-Legal Evidence relating to the Detection of Human Blood presenting the Alterations characteristic of Malarial Fever on the Clothing of a Man accused of the Murder of Narcisse Arrieux, December 27, 1876, near Donaldsonville, State of Louisiana. By Joseph Jones, M. D., Professor of Chemistry and Clinical Medicine, Medical Department, University of Louisiana. Reprinted from the *New Orleans Medical and Surgical Journal* for August, 1878.

A Practical Treatise on the Diseases of the Ear, including the Anatomy of the Organ. By D. B. St. John Roosa, M. A., M. D., Professor of Diseases of the Eye and Ear in the University of the City of New York, etc. Fourth Edition. Illustrated by Wood Engravings and Chromo-Lithographs. New York: William Wood & Co., 1878.

Cholecystotomy for the removal of Gall-Stones in Dropsy of the Gall-Bladder. By J. Marion Sims, M. D., Founder of the Woman's Hospital of the State of New York, and formerly Surgeon to the same; Ex-President of the American Medical Association, etc. Reprinted from the *British Medical Journal*, June 8, 1878.

On the Nature, Origin, History, and Public Prophylaxis of Venereal Diseases and the Doctrines of Syphilis. By Thomas Kennard, M. D., of St. Louis, Mo. Reprinted from the *St. Louis Medical and Surgical Journal*, July, 1878.

Narrowing, Occlusion, and Dilatation of Lymph Channels, Acquired Forms. By Samuel C. Busey, M. D. From the *New Orleans Medical and Surgical Journal*.

The New Treatment for Chorea. By John Van Bibber, M. D., of Baltimore. Reprinted from the *Transactions of the Medical and Chirurgical Faculty of Maryland*, April, 1878.

Ischæmia of the Retina. By Thomas R. Pooley, M. D., of New York. Reprinted from the *Transactions of the Medical Society of the State of New York* for 1878.

Sixth Annual Report of the Board of Health of the City of Boston, for the Year ending April 30, 1878.

Proceedings of the Connecticut Medical Society: Eighty-seventh Annual Convention, 1878.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. EDWARD FRANKEL AND GEORGE R. CUTTER.

SURGERY.

Gonorrhœal Rheumatism of the Larynx.—Dr. Libermann (*L'Union*, 1874) relates the following case: A soldier, twenty-six years of age, of moderately good constitution, contracted gonorrhœa on April 28, 1873. On May 15th the discharge had suddenly disappeared, and pains in the shoulder and knee-joint had set in. Three or four days after, the patient felt severe pain in the region of the larynx, and complete aphonia occurred. On entering the hospital, May 21st, the patient had no fever, and complained merely of severe pain on the left side of the larynx, which was increased by pressure on the left side of the thyroid cartilage. Laryngoscopic examination revealed considerable swelling of the left arytenoid cartilage in the region of the joint; and, by pressure on this point with the laryngeal sound, distinct fluctuation was perceptible. The mucous membrane covering it was reddened, and the redness was confined to this cartilage, the surrounding portions being perfectly healthy. The left vocal chord was more stretched than the right, and did not approach the median line, but remained immovable on phonation of the vowel *E;* thoracic organs normal; patient had never had syphilis. The author diagnosticated gonorrhœal rheumatic inflammation of the crico-arytenoid joint. Treatment consisted in application of a blister over the larynx, and painting of the affected portion internally with a mixture of equal parts of tincture of iodine and laudanum. After a few days the pain diminished, the voice gradually returned, and patient left the hospital on June 30th, at which time laryngoscopic examination revealed a perfectly normal condition.—In analyzing the above case, the author states that the condition found cannot be attributed to a tuberculous or other inflammatory process, since chondritis and tuberculous inflammations would not have disappeared so rapidly as an inflammation from the above-mentioned cause. The reasons which have induced the author to assume gonorrhœa as the pathological basis are: (1) a violent circumscribed pain in the laryngeal region; (2) redness and swelling of the mucous membrane in a markedly circumscribed portion; (3) feeling of fluctuation in the affected portion.—(*Med.-Chir. Centralblatt*, No. 41, 1874.) E. F.

Implantation of the Fibula in the Femur of a Child whose Tibia was wanting.—Dr. E. Albert communicates the following case in the *Med. Presse*, No. 4, 1877. A female child, nine months of age, presented an hereditary absence of the right tibia; the development was otherwise normal. The right foot was firmly connected with the outer ankle, in a slight varus position; the fibula could be readily shoved up and down along the external condyle of the femur. The lateral movements of the knee-joint were free. The muscles of the crus were well developed. The defect was not perceptible to the mere sight. The active movements of the foot and toes were performed with force.

The cartilage covering the condyle of the femur was exposed by a transverse incision, carried under the normally-developed capsule of the knee, during the rigid application of the antiseptic method. The joint capsule, which presented a normal appearance and contained but a small quantity of synovial fluid, was closed below like a cæcal pouch. In the anterior wall of the capsule, a short tendinous cord, the ligamentum patellæ, was found coalesced, in the posterior two parallel ones, the ligamentum cruris. The walls of the intercondyloid fossa were then resected in such a manner as to form a wedge-shaped cavity with spongy walls. The upper extremity of the fibula was cut so as to fit into this cavity, and fastened in position with a bone suture, passed between both condyles of the femur. No fever followed the operation, and a firm union took place between the two bones, with a slightly bent position of the leg.—(*Ugeskr. f. Laeger*, No. 24, 1877.) G. R. C.

Percussion of Bones.—Prof. Lücke discusses this subject in the *Centralbl. f. Chir.*, iii., 43. It serves to discover painful places in the bone, and, by the change in the normal percussion tone of the bone, morbid changes in the latter may be recognized. The author has entered more deeply into the latter, and has arrived at the following results: In tubular bones the extremities give a higher tone than the intermediate portion. The corresponding bones of a healthy individual give on both sides a tone of the same elevation. Newly-healed fractures give a deeper tone. The closure of a medullary cavity and the presence of increased bone substance may also be diagnosed by the help of percussion. Diseased articular extremities—chronic central ostitis—give a deeper tone. It was found, on the contrary, in a case of chronic inflammation of the knee, that the diaphysis of the diseased tibia, which was osteoporotic, gave a much higher tone than the healthy tibia. The percussion is made either with the fingers or with the aid of the percussion hammer, and it is always best to hold the limb to be percussed free in the air, so as to avoid the disturbing influence of resonance.—(*Ugeskr. f. Laeger*, No. 28, 1877.) G. R. C.

Primary Cancer of the Tonsil.—An interesting case of this affection is reported by Dr. Quentin. A man, sixty years old, robust and always well, some four years before had noticed a change in the *timbre* of his voice; shortly after a nasal obstruction, with occasional attacks of dyspnœa. Later on, the voice became nasal and singing difficult. Loud and prolonged talking required much effort; snoring during sleep, the mouth almost constantly open. Lying on the right side soon brought on a feeling of suffocation; and, after sleeping a while, the patient was obliged to jump out of bed, and passed the rest of the night on a lounge. Deglutition was tolerably easy; at times, however, there was a little dysphagia. The patient, believing himself asthmatic, neglected to consult a physician until the end of 1875. In June, 1876, the author saw him, and found a cachectic countenance, mouth open, hearing slightly diminished, heaviness of the head, frequent desire to sleep, and general debility. Articulation difficult, and frequently interrupted by efforts in respiration; difficult deglutition, and only of liquid nourishment. The pharynx was found filled by a tumor about the size of a hen's egg, compressing the roof of the mouth above, and descending below to the entrance of the œsophagus. A soft and short pedicle attached the tumor to the region of the left tonsil. The livid red mass had an ulceration at its upper portion. The neighboring parts were healthy, the parotid and submaxillary glands were not enlarged; but a hard painless gland, about the size of an almond, was found behind the clavicle. The tumor was removed with the *écraseur* in a few minutes, with slight hæmorrhage, arrested by perchloride of iron. Cicatrization was complete on the twentieth day. The tumor, pyriform in shape, measured two and a half inches in length, and was found to be scirrhous. The author cites one other case, communicated to him, of primary cancer of the right tonsil, in a patient thirty-two years of age, in whom, after the removal of the growth with the *écraseur*, the disease returned, after eighteen months, in the shape of a tumor below the ear, followed by death in three years.—*Gaz. Méd. de Paris*, 25, 1877. E. F.

PHYSIOLOGY.

Physiological Action of Salicylate of Soda.—Donemsky has instituted, in Prof. Sokolowski's laboratory at Moscow, a series of investigations on the action of salicylic acid and its soda salt on mammalial animals. These have led him to the following results: Salicylic acid and its soda salt have a great similarity to digitalis in regard to their action, but are preferable to the latter on account of their innoxiousness. The soda salt at first increases the heart's action, and the rapidity of the pulsation increases; at a later stage the force and rapidity diminish. The musculo-motor nervous apparatus of the heart is then paralyzed, while at the same time the pulse becomes weaker and more rapid, or weaker and slower. An irritation of the vaso-motory centre always occurs, from which results an increase of the contractile power of the heart and of the blood-pressure. Its retarding action on the heart is such that, even after section of the nervi vagi, the pulse becomes slower. Respiration becomes hastened under the influence of the sensitive pulmonary nerves; with larger doses the respiratory centre is paralyzed. The temperature of healthy animals and man is constantly, but only to a slight degree, diminished; in febrile conditions, on the contrary, to a greater degree, probably because the salicylate of soda increases the blood-pressure, the rapidity of the pulsation, and the loss of heat. By paying regard to the sthenic or asthenic character of the fever and its relation to the vaso-motory phenomena and the local affections, the drug may be used as a tonic sedative, or, in larger doses, as a paralyzing medium.—(*Ugeskrift f. Laeger*, No. 20, 1877.) G. R. C.

Local Action of Sulphate of Atropine.—Dr. A. Zeller (*Virchow's Archiv.*) finds that the addition of a small quantity of sulphate of atropine (one-half per cent.) to a solution of common salt rapidly abolishes the movements of the white corpuscles of the blood. He also states that the irrigation of the tongue of the frog, with a tenth per cent. solution of atropine, occasions the dilatation of the smaller arteries, with an increased rapidity of the sanguineous current, so that the white corpuscles no longer adhere to the walls of the vessels, and make no further attempt to emigrate. This dilatation of the vessels is purely local. Schiffer asserts that this dilatation may be merely due to some local irritation, as has been noticed by Loven.—(*Lo Sperimentale*, No. 5, 1877). G. R. C.

THEORY AND PRACTICE.

The Pathogenesis of Whooping-Cough.—Letzerich maintained that the real exciting cause, the contagion of whooping-cough, consisted in vegetable organisms, which were to be found in the sputa. Dr. Tschamer, of Gratz, recently instituted a series of observations and experiments, to ascertain the real value of this theory, and has finally come to the conclusion that the whooping-cough really depends on the presence of a vegetable parasite. He first made repeated microscopical examinations of the sputa of bronchial catarrh, pulmonary phthisis, and bronchiectasis, and, in addition to the elements usually present in these diseases, found only occasionally micrococci, either singly or in masses or chains, and bacteria singly or in chains. These same organisms are also found in the sputa of healthy persons, especially in the morning. In two cases of phthisis with cavities, he found masses of the closely-intertwined mycelium and hyphen of aspergillus. The presence of this fungus was probably accidental, and due to the action of atmospherical air on the retained secretion of the air-passages. Aspergillus has also been found in the cerumen of the ears and in other secretions. On the other hand, in the tenacious mucous sputa of pertussis, we can see with the naked eye more or less numerous whitish, sharply-defined bodies about the size of the point of a pin, and somewhat larger masses of a yellowish color, which mostly fall to the bottom of the glass when the sputa is allowed to stand for some time. These masses are often found in the sputa one or two days before the beginning of the convulsive attacks of coughing. They are invariably present in the sputa of every case of whooping-cough, and from their presence alone the diagnosis may be made. Microscopically, he found them to consist of epithelial cells, and delicate, reticulated, branched mycelium, several layers of which are often found, and of which the single interspaces present five or six sided polygons. In addition to these, more or less numerous, round or oval, greenish, transparent spores of various sizes are found. During the latter stages of the disease, he also found colorless hyphen, and larger, rounded spores of a yellowish or reddish-brown or dark-brown color, and finally, in a few cases, colored and branched hyphen. The masses were simply teased apart on a slide and mounted in water or glycerine, or were previously left from 3 to 24 hours in a solution of potash, which dissolves the mucus that surrounds them.

When these spores were placed on the tracheal mucous membrane of rabbits, they always excited manifestations similar to those of pertussis, with which the *post-mortem* appearances also corresponded. To ascertain whether the fungus really constituted itself the contagium, or was simply the vehicle for the transmission of a specific virus contained in the sputa, Dr. Tschamer cultivated under different conditions a number of specimens of fungus gathered from the sputa of patients suffering from pertussis. It is well known that fungus in the midst of pigment bacteria will take up the pigment cast off by the bacteria, and only lose it when cultivated under changed conditions. In the course of these experiments he was struck with the close resemblance of the fungus to a variety of fungus that he had previously found on the pits of a decaying orange, and was led in consequence to examine a number of oranges more closely. In the little depressions in the skin of almost all he examined, good as well as bad, he found little black or dark-brown points, which could easily be scraped off, and microscopically were found to consist of a conglomeration of the hyphen and spores of the fungus in question. A similar fungus was found on the skin of several varieties of apples.

Dr. Tschamer now attempted to infect himself with the sputa of whooping-cough, but no result followed. Fourteen days later he inspired from a dry, clean object-glass a small quantity of the fungus taken from an orange, after teasing it apart with fine needles. Four days later he began to suffer from a tickling sensation in the trachea, that was relieved by coughing, and the microscopical examination of the sputa revealed small networks of mycelium and spores. On the eighth day the characteristic convulsive cough set in, and the little white masses described above could be seen in the sputa with the naked eye. They continued to be present during the ten days that the convulsive cough lasted. A day-laborer was infected in the same way and with the same results. Further experiments, however, are required to settle the question definitely. From the foregoing observation it seems probable that pertussis is essentially a mycosis of the mucous membrane of the air passages, which is analogous to the mycosis of the skin, such as herpes tonsurans, etc. The fungus gains admission to the air-passages in the inspired air, fastens itself on the mucous membrane, and grows there. As it increases in quantity it acts as a foreign body and excites catarrhal inflammation. The convulsive attacks of cough are simply Nature's efforts to get rid of the fungus which has attached itself to the epithelium. When one mass of fungus has been expelled, what is left continues to grow, until the irritation produced by it and by the mucus collected about it are sufficient to excite a fresh attack of coughing, and so on. The mode of cure is as follows: In consequence of the constant increase in the amount of fungus, the inflammation of the mucous membrane increases until the secretion of mucus is very abundant and the epithelium is loosened. The masses of fungus are then more easily separated, and the convulsive cough becomes less severe and less frequent, and finally ceases.—(*Jahrbuch für Kinderheilkunde*, Band x., Heft 1 and 2.)

Stomach and Intestinal Gas in Flatulent Dyspepsia.—Levin finds by physiological and clinical experiments that the stomach and intestinal gases are derived from three sources: the air, blood, and fæcal matters. The food does not participate in the constitution of the gases of the digestive tube. The flatulent dyspepsia does not make its appearance till some time after the commencement of the gastric dyspepsia. The gas does not escape from the rectum, but is forced toward the mouth by an antiperistaltic intestinal contraction; it is continually driven onward by these contractions, and is continually replaced by the same operation. It is not formed in the intestines, but is expelled by the irritated muscles. As soon as the gastric dyspepsia is cured, the intestinal fibres are calmed, their peristaltic contractions diminish, and the gas again escapes from the rectum, while it is at the same time diminished in quantity. Medication with absorbent powders is of no use. In fact, it is not a question of diminishing the quantity of gas; this will disappear when the gastric dyspepsia is rationally treated.—*Bull. de l' Acad. de Méd.*, and *Lo Sperimentale*, March, 1878. G. R. C.

Bromate of Potash in Neurosis and other Cardiac Affections.—Dr. Angrisani, in an interesting article on this subject, gives the following conclusions: 1. Bromate of potash has a depressing action on the vaso-motor centres and on the cardiac plexus.

2. This effect is produced in the vaso-motor centres by a mode of action which is quite peculiar to it, and which we do not understand, and not because the bromate acts on the smooth fibres of the capillaries. The diminution of the lumina of the capillaries may depend simply on the extension of the action which this salt exerts on the centres and the vasomotor nerves alone in physiological experiments.

3. The bromate has no action on the muscular fibres of the heart like digitalis, and the latter has no action on the arteries.

4. The bromate is the most suitable medicine for correcting the functional anomalies of the heart—such as frequency, intermittence, arithm, etc., whatever may be the condition of the miocardium.

5. It modifies rapidly and advantageously angina pectoris and palpitations when they are simply neuroses. In those cases which depend on profound anatomic pathological changes of the heart and vessels, or on compression, the bromate is still capable of producing an amelioration which is more or less durable.—*Bull. Gen. de Thérap.*, and *Lo Sperimentale*, March, 1878. G. R. C.

Arnica in Furuncles, etc.—Dr. Planat has ascertained by numerous experiments with arnica that it exerts a very marked influence on all varieties of acute superficial inflammations, such as furuncles, angina, erysipelas, etc., with the exception of furuncles dependent on diabetes. In order to render its action on the small vessels more energetic, it is applied directly to the inflamed points in the form of an ointment, made with extract of arnica, 10 grammes, honey 20 grammes. If the mixture is too fluid, powdered lycopodium or altheæ may be added. The paste is to be spread on adhesive plaster, and applied to the furuncle. Two or three applications, changed once in twenty-four hours, suffice to cure or absorb a furuncle at any stage of its development. It is nearly as efficient when administered internally. —*Lyon Méd.*, February, 1878. G. R. C.

Miscellany.

To the Medical Profession.—The President and Officers of the Medical Society of the County of New York will receive contributions for the aid of our suffering medical brethren and their families in the Southwest.

The donations for the present not to exceed $5.00 from any one member, and from that down to $1.00, so that all may take part in the good work, and none be severely taxed.

It is hoped that all the county medical societies in the State will take some efficient action in the same direction.

J. C. Peters,
President of the Medical Society
of the County of New York.

Appointments, Honors, etc.—Dr. L. A. Stimson has been appointed Professor of Pathological Anatomy in the University Medical College and one of the Curators in Bellevue Hospital. Dr. R. M. Wycoff, of Brooklyn, has been appointed Registrar of Vital Statistics for that city.

Dr. Erasmus Wilson has resigned the Professorship of Dermatology in the College of Surgery, London. Dr. Risdon Bennett, Sir Joseph Fayrer, and Professor Lister have received the degree of LL. D. from the Edinburgh University.

Murder by a Somnambulist.—The *British Medical Journal*, of July 20th, gives the particulars of a homicide committed during the somnambulistic state. A man has been tried for the offense of throwing his son, eight years old, on the floor with such violence as to cause death. The jury decided that the father was not responsible for the act. Such cases are rare, but several well-authenticated ones are on record.

American Gynecological Society.—The third annual meeting will be held in Philadelphia, September 25th, 26th, and 27th. The time allowed for reading papers will be limited to thirty minutes. The Transactions of the Second Annual Meeting, which we shall notice hereafter, is one of the handsomest volumes ever published by any society.

Railway Accidents in Great Britain.—According to official documents it appears that during the year 1877 there were 126 passengers, and 642 railway servants killed, and 1,285 passengers and 2,163 servants wounded. The proportion of killed and wounded to the total number of passengers carried was lower last year than ever before.

The American Ophthalmological Society.—The following are the officers for the ensuing year: President, Henry D. Noyes, New York; Vice-President, William F. Norris, Philadelphia; Secretary and Treasurer, R. H. Derby, New York; Publishing Committee, R. H. Derby, D. B. St. John Roosa, E. G. Loring.

The American Otological Society.—The ninth annual meeting was held in Newport, R. I., July 24th. The following officers were elected for the ensuing year: President, Albert H. Buck, of New York; Vice-President, Charles H. Burnett, of Philadelphia; Secretary, J. Orne Green, of Boston.

British Medical Association.—The forty-sixth annual meeting of this association took place in Bath on the 6th of August. The address of the President, Dr. Falconer, was a lengthy history of the city of Bath. The next meeting will be held in Cork, under the presidency of Dr. O'Connor of that city.

A New Women's Hospital.—The *British Medical Journal* announces the completion, by Messrs. T. Jessop & Co., of a hospital for women in Sheffield. The cost of the building and fitting up was about $150,000.

Association for the Cure of Inebriates.—This society will hold its tenth annual meeting in Boston, September 10th. A large attendance is expected, and many important papers are promised.

Correction.—An error was made in the August issue, page 187, in regard to a letter which was written *to* Dr. J. C. Peters, and not *by* him, as reported.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from July 14 *to August* 13, 1878.

Sutherland, Chas., Colonel and Surgeon.—Granted leave of absence for nine months. S. O. 162, A. G. O., July 26, 1878.

Baily, J. C., Major and Surgeon.—When relieved to return to his station, Presidio, of San Francisco. S. O. 97, Division of the Pacific and Department of California, July 1, 1878.

Janeway, J. H., Major and Surgeon.—Granted leave of absence for three months. S. O. 160, A. G. O., July 24, 1878.

Tilton, H. R., Major and Surgeon.—Granted leave of absence for four months. S. O. 166, A. G. O., August 1, 1878.

Hubbard, V. B., Captain and Assistant Surgeon.—Assigned to duty with Major Sanford's First Cavalry Command, in the field, relieving Surgeon J. C. Baily. S. O. 97, C. S., Division of the Pacific and Department of California.

Gardner, W. H., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at St. Francis's Barracks, St. Augustine, Florida. S. O. 15, Department of the South, July 28, 1878.

Caldwell, D. G., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Independence, Mass. S. O. 128, Department of the East, July 24, 1878.

Cronkhite, H. M., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Brady, Michigan. S. O. 136, Department of the East, August 2, 1878.

Wilson, Wm. J., Captain and Assistant Surgeon.—Assigned to duty as Post-Surgeon at Fort Niagara, New York. S. O. 131, Department of the East, July 27, 1878.

Cleary, P. J. A., Captain and Assistant Surgeon.—Granted leave of absence for one month. S. O. 134, Department of the Missouri, July 30, 1878.

Ainsworth, F. C., First Lieutenant and Assistant Surgeon.—Assigned to duty with Battalion Eighth Infantry, ordered to duty in the field. S. O. 97, Division of the Pacific and Department of California, July 1, 1878.

Biart, V., First Lieutenant and Assistant Surgeon.—To report to Commanding General, Department of the Missouri, for assignment to duty. S. O. 160, C. S., A. G. O.

Gray, Wm. M., First Lieutenant and Assistant Surgeon.—To report to Commanding General, Department of the Columbia, for assignment to duty. S. O. 160, C. S., A. G. O.

Brechemin, L., First Lieutenant and Assistant Surgeon.—To report to Commanding General, Department of Dakota, for assignment to duty. S. O. 160, C. S., A. G. O.

La Garde, L. A., First Lieutenant and Assistant Surgeon.—To report to Commanding General, Department of the East, for assignment to duty. S. O. 160, C. S., A. G. O.

Obituary.

Rokitansky.—Prof. Karl Rokitansky, the eminent physician and anatomist, was born at Königsgratz, in Bohemia, February 19, 1804, studied medicine at Prague and Vienna, and received his degree of Doctor in 1828. He was attached to the establishment of Pathological Anatomy in Vienna, was appointed demonstrator in the Grand Clinical School, legal anatomist, etc., and conducted, in the course of a few years, more than thirty thousand dissections and *post-mortem* examinations. In 1848 he was named Honorary Rector of the University of Prague, and Member of the Academy of Sciences of Vienna; in 1849 Dean of the Professors of the School of Medicine, and in 1850 Rector of the University of Vienna. Though not a liberal contributor to the literature of his profession, Prof. Rokitansky was esteemed in Germany as the chief of his school. His most important work is a "Manual of Pathological Anatomy," published at Vienna in 1842–'46 and subsequently translated into English by the Sydenham Society, and published in London in 1845–'50.

Sir James Coxe.—The medical profession of Scotland has lost one of its ablest members in the person of Sir James Coxe, M. D., Commissioner in Lunacy, who died recently at Folkestone, after a very short illness. He was on the way home from a tour on the Continent, where he had been spending a short holiday. Sir James was born in 1811. In 1855 he was appointed one of the members of a Royal Commission "to investigate the condition of lunatic asylums in Scotland," etc. He drew up the report of the commission, which was presented to Parliament in 1857, and led to the passing of an act establishing the General Board of Lunacy for Scotland, with Dr. Coxe and Dr. Browne as Medical Commissioners. Since that time he has been a most diligent member of the board, and to him, in a great measure, are due its highly satisfactory working and valuable results. The honor of knighthood was conferred on him in 1863. He was President of the Medico-Psychological Association in 1872, when it met in Edinburgh.

Dr. James Elnathan Steel.—The late James Elnathan Steel, M. D., of this city, who died on May 28th, was born in Kidderminster, England, in 1828. His father, William Steel, was a Fellow of Oxford College, England, and his uncle, Richard H. H. Steel, of Birkensted, England, was a surgeon for upward of fifty years in the Royal Navy. His nephew graduated from the New York Medical College in 1861, where his "Thesis on Anatomical Preparations" took the first prize. He was afterward appointed Demonstrator of Anatomy in the same college. At the beginning of the war he accepted a position as surgeon in the volunteer corps, and was stationed at David's Island, Long Island Sound, where he won good opinions not only for his skill in operative surgery, but for his earnest and effective advocacy of conservative measures. He was afterward appointed surgeon in charge at Willett's Point, where he organized an army hospital. Afterward he was ordered to take charge and arrange an army hospital at Fair Oaks, near Troy. On returning to private practice he was appointed visiting physician to the Demilt Dispensary, which position he held for upward of seven years. He early became interested in scientific embalming, and commanded a large patronage in that line. For many years he was connected with the Masonic fraternity of New Rochelle and afterward of this city.—*Medical Record.*

M. Foville, well known on account of his researches on the anatomy of the brain, died recently in Toulouse. In 1844 he published an "Atlas of the Anatomy of the Brain."

Prof. Bartels, of Kiel, died last June. He made a special study of renal disease, as will be seen by his volume on the kidney, in Ziemssen's "Cyclopædia."

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Original Communications.

Art. I.—*On Gastro-elytrotomy.* By Henry J. Garrigues, A. M., M. D., Brooklyn, New York, Fellow of the American Gynecological and New York Obstetrical Societies.

The fearful mortality resulting from the Cæsarean section has given rise to the ardent desire of finding a substitute that might give better chances for the recovery of those women whose conformation is such that it does not allow the passage of the fœtus through the pelvis. Therefore were invented, on the one hand, *symphysiotomy* (Sigault, 1768), and its offspring, *pubiotomy* (Stoltz) and *pelviotomy* (Galbiati), and, on the other, *gastro-elytrotomy*, or *laparo-elytrotomy*. The first of these operations was at one time quite in vogue, and is still mentioned in all text-books, although abandoned long ago as entirely worthless, except in Italy.[1] The other was noticed so little that it was *invented* three times in different countries before it was reinvented in this country, and came into notoriety through the splendid results obtained by Dr. Theodore Gaillard

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[1] During the last five years symphysiotomy was performed nineteen times in the hospital of Naples. Fifteen patients recovered; four died. Three of the children died.—("Annales de Gynécologie," vol. viii., p. 317; reported in Howitz's "Gynecological Communications," vol. i., No. 3, p. 114, Copenhagen, 1878.)

Thomas, of New York, and his follower, Dr. Alexander J. C. Skene, of Brooklyn, New York.

HISTORY.—Medico-historical researches are difficult in a young country, in which, in spite of laudable efforts and great progress, the scholar looks in vain for the facilities afforded by the large public libraries of European cities. In order to ascertain the true history of gastro-elytrotomy, I have been obliged to bring under contribution the private and public libraries of New York, Boston, and Washington, nay, even to have recourse to the libraries of Copenhagen (Denmark). Even those most interested in the operation know little about its history. Most books on midwifery do not even mention the operation. The few that do, all give more or less erroneous descriptions of its performance and its results. It is therefore absolutely necessary to go to the original sources in order to get accurate and complete information on the subject.

The history of this operation may naturally be divided into two parts—the age of projects and attempts, in which we find Joerg, Ritgen, Physick, L. A. Baudelocque, and Charles Bell; and the age of fulfillment, belonging to Drs. T. G. Thomas and Skene.

The first group may again be divided into those who merely proposed the operation—Joerg, Physick, and Charles Bell—and those who tried it—Ritgen and Baudelocque, Jr.

Before going further it will be necessary to say what is the character of the operation, for the above-named authors and surgeons have by no means all advocated or tried the same procedure; but there is something common in their aim which makes a unit of the different plans and attempts. All try to *avoid opening the body of the uterus*, as done in the Cæsarean section, while some open the peritoneal cavity, others not; some incise the vagina, others the neck of the womb, or both together.

First Period—Projects and Attempts.—As early as 1806 the German obstetrician Joerg[1] proposed to make the Cæsarean section in such a way as to avoid the incision of the body of the womb. After having incised the abdominal wall in the *linea alba*, he advises to open the vagina, and, if this does not give space enough, the os uteri, by an incision, and extract the child through this artificial opening. He felt justified in making this proposition from the experience of several accoucheurs who had seen the child pushed through a rupture in the vagina into the abdominal cavity. He had only once performed Cæsarean section, on a dead woman, and in that case he saw that he could extract the child very easily by incising the lower part of the uterus only. He thought that an incision here would be less dangerous and would heal more readily than the artificial opening in the middle of the uterus.

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[1] Joerg, "Versuche und Beiträge geburtshülflichen Inhalts," Leipsic, 1806, p. 263; "Handbuch der Geburtshülfe," 1807, sec. 384, and new edition, 1833, sec. 512.

To Joerg, then, belongs the honor of having first enriched science with a proposal falling under the head of gastro-elytrotomy; but, in the first place, he never tried his plan in practice, and, next, his plan, as it is, is open to a good deal of criticism. First, he incises the peritonæum, in which respect he is inferior to most of his successors. Second, he makes the incision in the middle line, which would leave a comparatively great distance to the point in which the deep incision is to be made, and from which the child shall be taken, and diminish the advantage gained by tilting the uterus on one side during delivery. Third, if he had carried out his plan of incising the side-wall of the vagina, and carrying up the incision into the neck of the womb—in other words, making a longitudinal incision in the direction of the axis of the pelvis—he would have endangered the ureter of the corresponding side very much. Fourth, if, as in his second proposition, he incised only the lower segment of the womb in front, he would, indeed, avoid the ureter and the large uterine vessels, but, on the other hand, he would incise a part much less contractile than the body of the uterus, and, consequently, the vessels divided would be apt to give a fatal hæmorrhage.

In 1820, Ritgen,[1] another German professor, took a great step forward, proposing to operate *without opening the peritonæum.* He acknowledges his obligation to Joerg on one hand, and to Abernethy and Cooper on the other, the first having proposed the incision of the vagina, the two others having taught how to ligate the external iliac artery without opening the peritonæum. He regards the time following close upon the spontaneous rupture of the membranes as the most favorable for operating. Before the rupture the vagina is too little extended, later the head has too much difficulty in passing the os on account of the resistance offered by the pelvis. Yet, even if the head be already fully engaged in the os, or still more advanced, the operation is still indicated. If the vagina has ruptured spontaneously, the same incision ought to be made through the abdominal wall, including the peritonæum.

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[1] Ritgen, "Die Anzeigen der mechanischen Hülfen bei Entbindungen," Giessen, 1820, pp. 406–7, and 441–446.

On account of the greater distance between the rectum and the ilio-pectineal line, the incision ought to be made on the right side. The patient is placed on her back, the sacral region considerably elevated on a firm cushion, the head, neck, and shoulders raised on pillows, and the thighs and legs stretched out.

He describes the *modus operandi* in these words: "1. The accoucheur takes his place at the right side of the pregnant woman, introduces a male catheter, pushes the bladder toward the left side, and gives it in charge to an assistant. Another assistant, standing at the left of the woman's chest, places one of his hands flat in the middle line, under the umbilicus, the other toward the left, and draws the uterus toward himself and away from the right side of the pelvis, by doing which he also puts the skin to be incised on the stretch. 2. A semilunar incision is made from the region of the crista ilii to the neighborhood of the *symphysis pubis*, at a distance of barely an inch from the bones in this region. 3. Next, an incision is made through the muscles in the same direction, and with the precaution not to injure the peritonæum. Arteries that may have been severed, such as the epigastric, the abdominalis (superficial epigastric), and the circumflex iliac, are immediately tied. 4. Now the areolar tissue, which lies under the peritonæum, is to be separated with the fingers, the handle of the scalpel, or, if it can be safely done, with its edge, and thus the peritoneal cavity undermined, in order to come behind the walls of the vagina. 5. Then the operator introduces Frère Côme's *sonde à dard*, the stylet drawn back, into the vagina, and applies the point of the instrument against the wall of the vagina so as to raise it above the middle of the *linea innominata* (or ileo-pectinea) of the right side. At the same time the assistant who lifts the abdomen draws the uterus vigorously away from the iliac and pubic bone, thereby exposing as much as possible of the deeper parts of the vagina. 6. The operator now pushes the stylet of the sound through the vaginal walls, protecting the surrounding parts with the thumb and the fore and middle finger of the left hand. 7. When the stylet has perforated the wall, a probe-pointed bistoury is passed down along its groove, and the vagina opened toward the urethra, which must not be wounded. Then the stone-sound is withdrawn and the incision extended toward the rectum, as far as it can be done without injuring this organ, using the fore-finger of the right hand as a guide. 8. When this incision has been successfully performed, so as to leave a curtain of vaginal wall two or three inches long hanging down from the right half of the uterine neck, this curtain is to be divided in the middle with a pair of scissors, up to the edge of the uterus. 9. Next, the wound is covered with a fine piece of linen soaked in warm oil, and the operator awaits the passage of the child through the wound, during which the womb must be drawn vigorously upward and toward the left. If necessary, the vaginal portion of the uterus may be incised on the right side, in order to facilitate the passage of the child. 10. After the expulsion of the fœtus the wound is cleaned, and the skin and the muscles brought together by interrupted sutures and strips of adhesive plaster. The wound in the vagina is first left alone, and later only moistened with injections of conium. A suitable bandage ought to be applied in order to prevent a ventral hernia." He says that he did not lay much stress on the unavoidable injury to the artery and veins running through the lacunæ of the vagina, the artery being so small that, when entirely cut, it soon ceases to bleed, and the venous hæmorrhage being likely to be arrested by the compression exercised by the body of the child moving forward, by the contraction of the womb during the expulsion of the fœtus, or being easily checked, as he hoped, by tamponing the wound with a sponge.

Ritgen not only gave this detailed plan, so rich in excellent suggestions, but the following year, October 21, 1821, he had the courage to subject his views to the test of experience. As we learn as much from failures as from successes, and as the description of this first essay of gastro-elytrotomy is only found in an old German journal,[1] accessible to few of my readers, I deem it useful to translate it *in extenso.*

"The wife of Joan Peter ——, of ——, thirty-seven and a half years old, a woman of small stature and very delicate constitution, with dark eyes and hair, was delivered ten years ago of a living girl. The labor was difficult and the child was taken with the forceps. The woman gave birth to a second child, a boy, on the 24th of October, 1815, and this time the labor was a very easy one. The same was the case on the 15th of February, 1818, on which day she was again delivered of a boy.

"In the year 1819, in consequence of all sorts of depressing emotions, a cold and damp dwelling, as well as bad food, she began to sicken. Her complexion became pallid and finally earthy. She lost flesh, and her gait became so uncertain that, toward the end of 1820, she could no more leave her bed.

"The physician who attended the patient, Dr. ——, diagnosticated the disease as beginning osteomalacia, and warned her against becoming pregnant. Pregnancy occurred, however; and, when in due time he was called in to deliver her, he found the bones of the vertebral column and the pelvis distorted, the lumbar vertebræ turned inward and toward the left, the sacrum much curved at its lower end, the pubis turned inward and upward, the symphysis pubis sharply projecting, and the horizontal branch of the right pubis bent inward. The bones of the pelvis had not reached that degree of softening which allows the application of the forceps. Not long ago the same physician had succeeded in extracting two children, whose mothers suffered from still greater narrowness of the pelvis, but in those two cases the pelvic bones were already so flexible that they yielded to the pressure of the head seized with the forceps, and allowed it to pass.

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[1] "Heidelberger klinische Annalen," vol. i., Heidelberg, 1835, p. 266, *seq.*

"The inward deflection of the pubis, which caused the head of the child to overtop the pelvic brim in this place, made the doctor particularly expect success from gastro-elytrotomy. He therefore applied to me in order that I might myself perform the operation as proposed by me.

"Accompanied by Dr. ——, I repaired immediately to the house of the parturient woman, where we found the necessary number of assistants. She appeared to me exactly as described by Dr. ——. I found her very thin, with small, rather quick pulse, but without fever. She was entirely resigned as to the pain and the possible result of the operation. She wished only to have the child saved, and complained of great weakness. Labor pains had begun in the forenoon of the preceding day, had disappeared toward evening, had set in again during night, and increased until five o'clock in the morning. Since then they appeared with intervals of eight to five minutes. By external and internal examination, I verified the statement of Dr. —— in regard to the conformation of the pelvis and the vertebral column. The womb was normally shaped, the fundus and body lying more in the left, the neck more in the right side of the mother. The os was felt soft and swollen, and presented a dilatation of two and a half inches in diameter. The occiput of the child was directed toward the right sacro-iliac articulation, and the left parietal bone overtopped the right pubis of the mother, which was bent inward. Although the promontory was very easily reached on account of the curvature of the sacrum, the head stood pretty high, because the projection formed by the last two lumbar vertebræ prevented it from descending. With the hand and my pelvimeter I made out the measures of the pelvic brim pretty accurately as they were found after the death of the patient.

"I wished to delay the operation until the head was passing through the os, in order to be able to extract the child quickly after having made the incision, but the great weakness of the patient made it dangerous to wait for this. The bowels and the bladder having been emptied, and the patient having taken an opiate, the operation was begun at 10 A. M. The patient was placed on her back, on a solid table covered with a mattress, pillows, and a large piece of oil-cloth. All precautions usual in Cæsarean section were taken, and the necessary instruments at hand.

"I made the incision through the skin on the right side in the way prescribed above, and likewise that through the muscles. The epigastric artery, that had been cut, was tied, and the walls of the vagina exposed on the right side, the areolar tissue being easily separated with the fingers. I passed the handle of my wooden pelvimeter into the vagina, pressed the knob of this instrument against the roof of the vagina, and raised it at the point where the pubis was most bent inward. Having charged the first assistant with holding the pelvimeter, I incised the vagina at the raised point with a convex knife, and dilated the opening with the probe-pointed knife, guided by the forefinger of the left hand near up to the urethra, the incision extending one inch and a half in length. The bleeding from the vessels severed in the vaginal wall was quite insignificant, and stopped immediately by itself.

"Next I dilated the incision one inch and a half backward, but I had scarcely incised the last inch when a stream of blood filled the wound and poured out, whilst another traversed the vagina. Without delay I pushed a sponge soaked in cold water which lay near by into the wound, thereby checking the hæmorrhage immediately and perfectly. Now we waited for the next labor pain, which was weaker than the preceding ones, and did not move the child forward in any perceptible degree. I resolved, therefore, to incise the os uteri during the next pain, and extract the head of the child; but, on withdrawing the sponge, the blood came again rushing out so violently that I was obliged to desist from this intention, and replace the sponge in the vagina. We resolved, if possible, to leave the expulsion of the child to Nature's own efforts, the sponge stopping the hæmorrhage completely. Therefore, half an hour was spent in restoring the patient, and furthering labor pains by the administration of wine, tincture of cinnamon, etc., but the contractions of the uterus had entirely ceased, and the strength of the patient was failing fast. In order to save the child, that still made lively movements, immediate help was necessary. It was feasible to perform pubiotomy, and on account of the softened condition of the bones a ready yielding of the sacro-iliac symphyses without any rupture could be expected; but, on the other hand, the sponge which checked the bleeding would thereby loose its hold, and the child would not be born immediately. Neither could a return of the hæmorrhage from the vaginal wound be avoided by podalic version. While we were consulting as to the course to be adopted, the patient fainted. I examined the interior of the vagina, but did not find any extravasation of blood there. The patient having rallied, I quickly seized the knife and performed the ordinary Cæsarean section. Within a few moments I extracted a large boy, having all the signs of a vigorous life. I made the Cæsarean section in the direction proposed by Stein, Jr., beginning at the right of the umbilicus, and carrying the knife near to the middle of the left horizontal branch of the pubis.

"No ligature was needed after the incision through the muscles and before opening the peritoneal cavity. The intestines did not protrude after the opening of this cavity. The bleeding from the uterus was trifling. While I handed the child to the midwife, Dr. —— had approached the patient, and, when I returned to her, he had already withdrawn the after-birth. I saw that the womb had by no means contracted fully. I therefore passed my right hand through the oblique wound in the uterus, and placed my left hand on the fundus uteri, which was intact, and endeavored to make the womb contract in the way recommended by Wigand. This succeeded after a few minutes. Then the parts surrounding the contracted womb were examined, and no extravasation of blood into the abdominal cavity was discovered. Now the sponge was removed from the wound in the vagina, and, as I had expected, no more blood flowed from it. Next, the abdominal walls were united at both incisions with sutures and straps of adhesive plaster going round the whole abdomen. Finally, a many-tailed flannel bandage was applied round the abdomen, and the patient brought to bed a little before 11 o'clock. She had recovered somewhat, and rested content with having given birth to a healthy child."

The family physician insisting on the application of woollen cloths soaked in an infusion of resolvent herbs, made with wine and used as hot as the patient could bear them, while Ritgen held them to be very dangerous in regard to internal hæmorrhage, the latter withdrew from active participation in the treatment of the patient, and continued only to watch it. As the prescriptions do not present anything of interest, I will not reproduce them here, and merely give the description of the further course of the case. The night between October 1st and 2d the patient was quiet, free from pain, and slept pretty well. In the morning of the 2d her pulse was rather quick and very small. She was very weak. No fever present. The lochial flow was scanty. The night between the 2d and 3d was passed without sleep. After two loose passages her strength lessened till morning, when she again rallied somewhat and became a little feverish. The urine was passed without any disturbance. Toward 10 A. M. the abdomen began to swell, the patient became restless, and the fever augmented. The meteorism seemed especially to be seated in the colon. The patient's strength diminished, while the distention of the abdomen increased, and breathing became very difficult. The heat was all the time very moderate. Toward evening it disappeared altogether, and death ensued at 8 P. M.

Post-mortem examination forty-eight hours after death. "The edges of the wounds were without any trace of suppuration, and even without considerable inflammatory swelling. Here and there the opposite surfaces of the wound were slightly glued together, but in several places no union had taken place. The peritonæum did not show any inflammatory redness around the wounds or anywhere on the anterior wall of the abdomen. Nowhere in the abdominal cavity was there found any extravasated lymph. The interior surface of the cæcum and a small part of the ascending colon displayed here and there spots of the size of a cent, in which a red vascular net was discernible. The whole colon was much distended with gas. The womb had relaxed,

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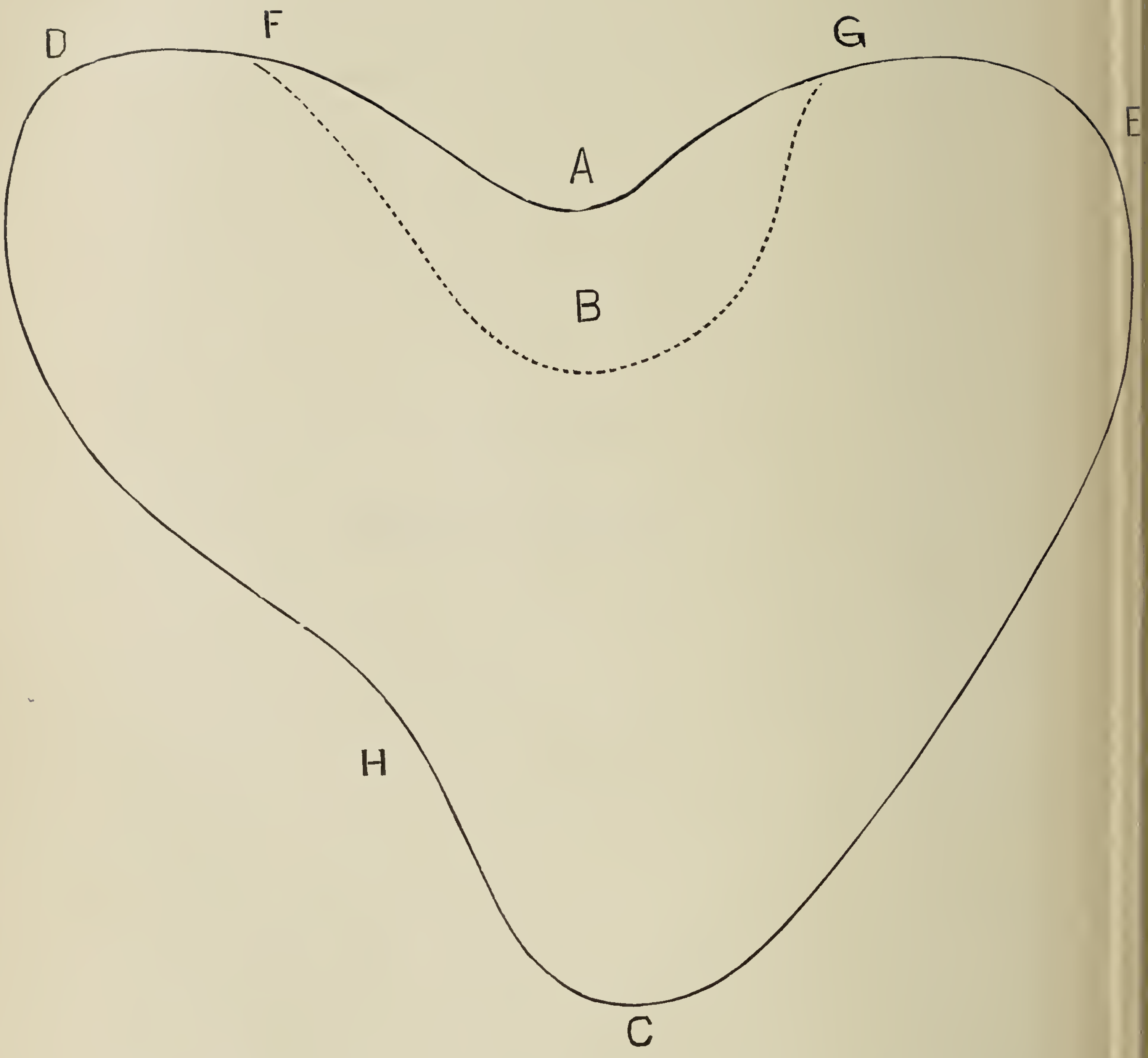
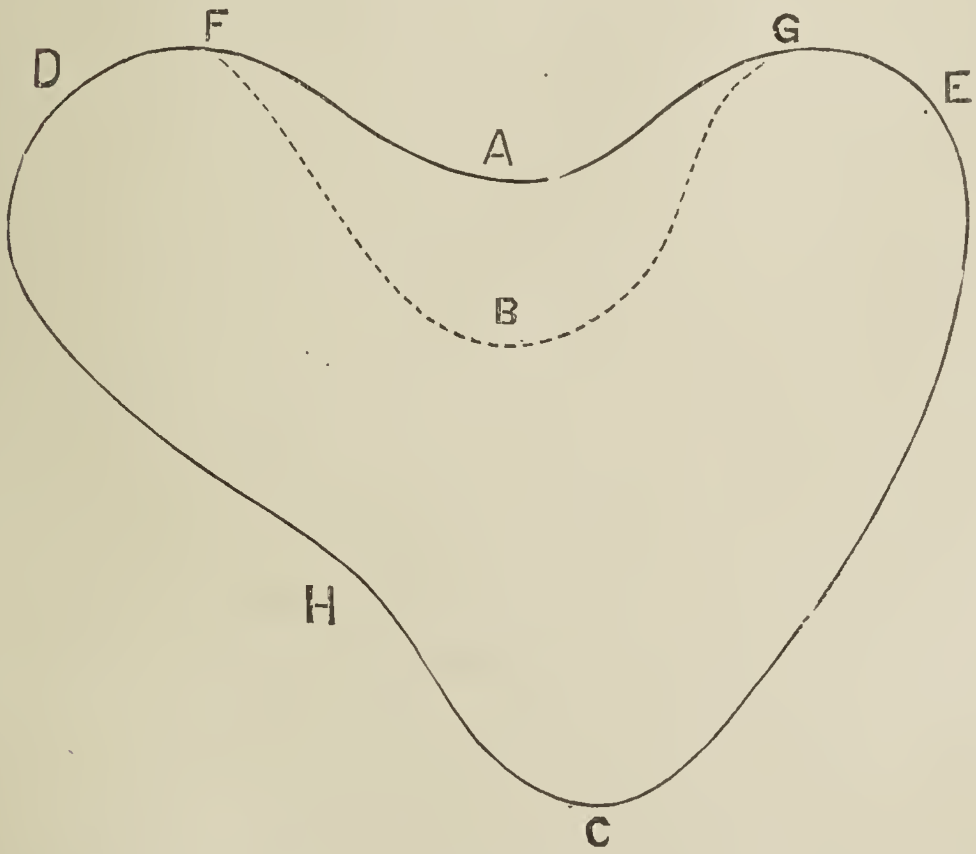


Pelvis of Woman on whom Ritgen performed Gastro-elytrotomy.—Heidelb. klin. Annal., vol. i., 1824.

D C E, superior strait; *D*, region of right sacro-iliac symphysis; *E*, region of left sacro-iliac symphysis; *C*, symphysis pubis; *H*, depression of right pubic bone; *F A G*, lower border; *F B G*, upper border of lowest lumbar vertebra.

Measures in American inches, added by me; *A C*, $3\frac{1}{4}$ inches; *D C*, $4\frac{1}{2}$; *E C*, $4\frac{1}{16}$; diameter sacro-cotyloidea, right 2, left, $2\frac{5}{16}$.

and measured from the fundus to the mouth eleven inches; the body measured almost six inches in width. The wound in the uterus was wide open, and filled with coagulated blood, thick clots of which also filled the interior of the whole womb. The amount of blood contained within the womb was estimated at a little less than a pound. Above and behind the womb, extending up to the diaphragm, was found a fluid extravasation of blood amounting to a little more than a pound. No traces of inflammation were found around the extravasated blood. The other abdominal viscera were entirely normal. The large blood-vessels contained very little blood. The cavities of the head and the chest were not opened. The vaginal wound had not united, the edges having been partly separated by the distention of the colon, and no plastic lymph having been secreted by them. The pelvis was cut out, and the annexed diagram of the brim was made from it."



Pelvis of Woman on whom Ritgen performed Gastro-elytrotomy.—"Heidelb. klin. Annal., vol. i., 1824. (*See* opposite page for engraving showing full size.)
D C E, superior strait; *D*, region of right sacro-iliac symphysis; *E*, region of left sacro-iliac symphysis; *C*, symphysis pubis; *H*, depression of right pubic bone; *F A G*, lower border; *F B G*, upper border of lowest lumbar vertebra.
Measures in American inches, added by me: *A C*, $3\frac{1}{4}$ inches; *D C*, $4\frac{1}{2}$; *E C*, $4\frac{1}{16}$; diameter sacro-cotyloidea, right 2, left $2\frac{5}{16}$.

Ritgen remarks that his incision through the abdominal wall, on account of the direction of the fibres of the external oblique abdominal muscle, gave little space in width, and that he had determined to make *a second, from the lower edge of the first, along the epigastric artery, downward*, when the particular circumstances related above prevented him from going on with the operation.

He further thinks that the *incision of the os and the neck of the womb cannot be avoided in any case.* After having incised the vagina he would not extend the incision into the posterior part of its side, in order to avoid the vessel the injury of which frustrated his first attempt, but go right to the uterus. "The best place," says he, "for incising the uterus is below the fold of the peritonæum which is formed when it spreads over the round ligament and partially surrounds it. By undermining the peritonæum from below and from the side, so as to enter into the interior of this fold, the space under the ligament, which is only filled with areolar tissue, leads to a very extensive part where the uterus is not covered with peritonæum. Consequently, an incision may here be made in the uterus without opening the peritoneal cavity, extending from the os high up on the body. The ureter adhering to the rough surface of the peritonæum will not be wounded if the operator keeps far enough from the peritonæum with his knife. Cooper's hernia knife, which, behind the blunt point, has a cutting edge of only one-half of an inch in length, is therefore the most suitable instrument to be used in this locality. The incision ought to begin at the os, and may be carried five inches upward. We need not say that, as soon as the incision is made, the child has to be extracted, in order that the hæmorrhage from the opened wall of the womb may be arrested by the contractions of the whole organ."

Before criticising any particular point I would call attention to the lucidity of Ritgen's description. We follow him, both in his plan and in his operation, step by step. Nothing is left to conjecture. He speaks with worthy calm of his invention, and gives honestly all details about his failure. In his modesty and simplicity he differs in a striking manner from the vainglorious and verbose Baudelocque. *It is Ritgen's lasting merit to have been the first to propose gastro-elytrotomy with avoidance of opening the peritoneal cavity.* Thus he is, from an historical point of view, the real inventor of an operation that, resuscitated in an improved form, seems to have promise of a great future.

His idea of incising the vagina by following the groove on Frère Côme's *sonde à dard* was not very good. This incision would have become almost longitudinal, and we see that he wants a transverse incision, since the next step is to make a longitudinal one up to the os uteri. In thus recommending a ⊥-shaped incision of the vagina, he took too little notice of the vessels running in the parts to be incised, and would almost infallibly have cut the ureter. If he had followed his plan of using the forefinger of the *right* hand as a guide in extending the incision, he would have been obliged to cut with the left hand, which in so delicate an operation would embarrass most operators. In performing the operation he arranged it so as to use the left forefinger as a guide, which, of course, is the simpler way. By keeping a metallic catheter in the bladder during the incision it will be easier to avoid wounding it with the cutting instrument; but it ought of course to be withdrawn before the child is extracted or expelled, in order to prevent injury to mother and child. His recommendation to wait for the child, till it is expelled by the unaided efforts of Nature, is not good. The sooner the operation can be ended, the better, on account of anæsthesia, disinfection, checking of hæmorrhage, etc. His operation failed in consequence of hæmorrhage. The first incision and the extension forward one and a half inch succeeded, but in cutting backward he caused a hæmorrhage that forced him to desist from his plan. This was evidently due to the vaginal branch that is running downward along the border of the vagina from the uterine artery. If, instead of cutting, he had torn, he would probably have been able to bring his operation to an end. Having been unsuccessful in his first attempt, he proposed alterations in his plan by which he made it more unlike the operation as it succeeded in other hands, half a century later. He proposed to make the external wound T-shaped, which would make it more difficult to heal, and weaken the abdominal wall still more, and which later experience has proved to be an unnecessary injury. His second proposal, to incise the edge of the uterus between the folds of the peritonæum as high up as five inches from the os, is so far from being an improvement that I think it is inferior to the common Cæsarean section. Even if he succeeded in avoiding the ureter, he would cut exactly in the part of the uterus where the largest vessels are situated, and which has not the same contractile power as the part incised in Cæsarean section. He mentions the circumflex iliac artery among those that may be severed by the incision through the abdominal wall; but this vessel is out of the way when the incision is made, as prescribed by Ritgen, an inch above Poupart's ligament. It takes its course behind the ligament and inside the crista ilii. He operated when the os was only two and a half inches in diameter. In such a case the os would have to be dilated first, which, with our present resources, could be done without difficulty. To use the handle of an instrument or a sound for lifting up the vagina and incise upon it is not so safe as to use the fingers. By following the latter plan the operator is enabled to feel for pulsating vessels, and perhaps avoid them, as Dr. Skene did. Even when operating on the right side, and consequently being obliged to introduce the right hand into the vagina, he would be able to make the first incision in the vagina with a knife carried in the left hand. But, as we shall presently see, other instruments are preferable.

August 19, 1823, L. A. Baudelocque ("the nephew") defended in the Medical School of Paris a thesis called: "*Nouveau procédé pour pratiquer l'opération césarienne*," and on the 14th of November of the same year he read before the Cercle Médical a paper on the same subject, published at Paris in 1824 under the title: "*Nouveau moyen pour délivrer les femmes contrefaites à terme et en travail, substitué à l'opération appelée césarienne.*" He called his operation *gastro-elytrotomy*, and conceived such high opinion of its value that he says that the Cæsarean operation, hitherto so terrible for the mother, can no more take her life (p. 10)! Having placed the patient on her back, he advises to make an incision along the external edge of the rectus abdominis from the umbilicus extending to two inches above the pubis. This is done so as to preserve the peritonæum intact. Then he ruptures the membranes from the vagina. Next he separates the peritonæum from the iliac fossa by the finger introduced into the lower end of the wound. An assistant lifts the peritonæum and the intestines, while another fixes the uterus. The operator introduces his hand into the abdominal wound and feels for arteries surrounding the vagina. If he finds any, he ties them at both extremities. He feels likewise for the round ligament, in order to be able to avoid it later. The bladder and rectum are emptied.

Next he introduces his left hand into the vagina and pushes it through the external wound. With the right hand he seizes a bistoury and incises the vagina through the external wound, as far below its junction with the uterus as possible, and extends the incision to a length of four inches and a half. The expulsion of the child is left to Nature, or if not expelled it is extracted with a short forceps.

He proposes, as another method, to comprise the peritonæum in the incisions. He chooses for the operation the side opposite to that in which the fundus uteri is situated. He removes the placenta through the natural passage after having replaced the uterus.

In 1844 Baudelocque published a new pamphlet on the subject, under the title "*Opération césarienne.—Élytrotomie, ou section du vagin, précédée, ou non, de la ligature ou de la compression de l'artère iliaque interne.*" In this the original plan is much modified. He advises (page 11) to make an incision extending from a point twenty lines (about one inch and three-quarters) outside of the spine of the pubis to another a little above the anterior superior spine of the ileum, leaving the round ligament inside. After having separated the peritonæum as described above, he introduces between the internal iliac artery and vein a female catheter, through the eyes of which is drawn a thread, and ligates the artery. Next he thrusts the bistoury from without through the side-wall of the vagina beneath the ureter, which is found one centimetre (three-eighths of an inch) below the neck of the womb; or he introduces a sound with stylet (*sonde à dard*) into the vagina with the left hand, making counter-pressure with the thumb and forefinger of the right hand, at the place where the point is felt. An assistant pushes the stylet forward, and the operator dilates with a probe-pointed bistoury, from above downward, the puncture made in the vagina. He turns and extracts the child. The child having respired, the cord is cut, put back into the vagina, and the placenta removed through the normal passage. Likewise, both ends of the ligature round the internal iliac artery are drawn forth through the vagina. The edges of the external wound are brought together with three or four sutures that do not comprise the peritonæum, and the wound is dressed. The patient being replaced on her bed, the abdomen is covered with ice for several days, in order to prevent peritonitis.

After laying down this plan for the operation, he reports two cases in which he had tried it:

Case I. (*l. c.*, page 12).—Date of operation not indicated. The patient was thirty-six years old, primipara, rickety, only a metre (about thirty-nine inches) high. She had first begun to walk when eleven years old, and then with a crutch. During her pregnancy she could only walk on two crutches. The brim of the pelvis was very irregular, wider in the right than in the left half, with an antero-posterior diameter of two inches and a half. The os was four centimetres (little more than one inch and a half) in diameter. The waters had broken spontaneously, and flowed out in great quantity. The operation is described in these terms:

"I made through the skin of the left iliac region an incision beginning twenty lines (one inch and three-quarters) from the spine of the pubis, and ending two centimetres (three-quarters of an inch) in front of and a little above the anterior superior spine of the ileum. Next I incised, layer after layer, the external oblique, the internal oblique, and the aponeurosis of the transverse muscle. During this incision an endless number of small arteries gave blood, and were immediately tied. At the lower angle of this incision I made a small opening in the transversalis fascia, through which I introduced a probe-pointed bistoury, and cut the fascia from below upward. Then, passing my left forefinger between the peritonæum and the iliac muscle, I separated this membrane from the muscle through its whole extent, down to the vagina. The internal iliac artery and vein having been exposed, I pressed the point of the bistoury against the external surface of the vagina, one centimetre and a half (five-eighths of an inch) beneath the ureter, i. e., about twenty-seven millimetres (a little more than an inch) below the neck of the womb. This simple puncture of the vagina caused such a flow of blood that instantly the iliac fossa was filled. I sponged it immediately, but it was filled again twice. This loss of blood, although not considerable in itself, was sufficient to weaken this woman; we saw her natural pallor increase and her eyes turn in their orbits. My assistant tamponed speedily the outside of the vagina and the iliac fossa with sponges, and I performed immediately hysterotomy, extracting a child that had died quite recently. I removed the placenta through the wound in the uterus, and united the edges of the anterior wall of the abdomen by six interrupted sutures. The wounds were dressed simply, a binder applied round the abdomen, and the patient brought to bed."

He adds that the hæmorrhage came from the vaginal veins, that he ought not to have been so frightened by it, and that compression exercised with a finger on the common iliac artery would have stopped it and permitted him to go on with the operation. The patient again lost blood during the incision of the uterus, and continued bleeding from the lips of the uterine wound and from the vaginal veins, until she died from hæmorrhage. Time of death not indicated. The autopsy showed *anœmia.*

Case II. (*l. c.*, page 14).—May 6, 1843. Age and number of pregnancy not stated. Pelvis ten centimetres (almost four inches). Eclampsia.

"The woman having been placed on a table covered with a mattress and sheets, I chose, as in the first case, the left inguinal region. The incision of the skin and the muscles did not present anything remarkable except the necessity of applying about thirty ligatures. The separation of the peritonæum was very easy. After having separated, with the end of a female catheter, the internal iliac artery from the accompanying vein, I passed under this artery a Deschamp's needle, through the eye of which I had drawn a flat thread; but, at the moment I carried it round the artery, the peritoneal sac slipped from the hands of the assistant, so that for an instant I did not see the point of the instrument, which met the external iliac artery and pricked it, although the needle was rather blunt. A small continuous stream of blood appeared instantly, and I was obliged to tie the *common* iliac artery. After having passed the left hand into the vagina, and having raised on the tips of my fingers the part of the vagina that was to be incised, I perforated it from without with a straight and pointed bistoury. Next I extended the incision with a probe-pointed bistoury from above downward, in order not to injure the ureter. Then passing the same hand through the vaginal wound into the uterus, I seized the feet of the fœtus, whose head presented at the brim, and turned it with the greatest facility. The child was dead, the mother having had an attack of eclampsia, with loss of consciousness, before I performed the operation. As to the after-birth, I extracted it through the natural channel, having replaced the cord through the vaginal wound.

"The edges of the external wound having been brought together with strips of adhesive plaster, and covered with lint, I replaced the patient on her bed. She felt then so well that she wanted to get up and take some food. For about twenty-four hours she complained of numbness in the left leg. After that the numbness disappeared entirely, and the heat returned in this extremity so as to become greater than in the right leg. Thus, on the third day after the operation, we could consider Mrs. D. as cured of the ligature of the common iliac artery. Nevertheless, this accident prevented me from combating, with as much energy as I else would have used, the inflammatory symptoms appearing in the abdomen. The following day the abdomen was distended, the patient had pain in some places, the wound looked bad and smelled slightly gangrenous; normal lochial discharge; fever. Twenty leeches were applied to the tender parts of the abdomen, and twelve drops of laudanum in a little sweetened water administered internally. The next day the tympanites was considerable, vomiting set in, the odor from the wound was much more marked, abundant suppuration, fever. Phlebotomy and fifteen leeches on abdomen. The blood withdrawn from the vein and by the leeches amounted in all to 500 grammes (about 16 ounces). In spite of this rather active treatment in a woman of so small a stature (height not stated), the inflammatory symptoms increased, the tympanites became excessive, although the pain in the abdomen had ceased, and on the fourth day Mrs. D. vomited continually, her extremities grew cold, her face became blue; briefly, she was asphyxiated in consequence of the distention of the abdomen, and died 74 hours after the operation.

"*Autopsy.*—Distention of bowels; very slight redness of some spots of the peritonæum covering the intestines; extravasation of 80 to 100 grammes (about 3 ounces) of yellow serum; no obstacles in the alimentary canal capable of producing the tympanites; no union of the vaginal or the external wound. All the other organs were healthy.

"What has caused death? Is it the slight injection of the peritonæum? I do not think so. Is it the opium that was given to calm the abdominal pain, and that produced the paralysis of the intestines, their enormous distention, and death from asphyxia? I think so."

After this second operation, he proposes (p. 17), as an improvement, to incise skin and muscles to the extent of one inch, close up to (*rasant*) Poupart's ligament, lift the peritonæum in this place in order to ligate the *anterior* iliac (*sic*) and the epigastric artery, push the forefinger of the left hand between the peritonæum and the muscles of the anterior wall of the abdomen, use it as a guide for a probe-pointed curved bistoury, and cut in one stroke, from the inside outward, and from below upward, the muscles and the skin. This, he says, would shorten the operation considerably, because there would be fewer ligatures to apply.

In the same pamphlet (p. 23), Baudelocque proposes two other methods. The first consists in an incision in the *linea alba*, as in ordinary Cæsarean section. The uterus would protrude from the abdominal cavity by itself, or, if necessary, it should be drawn out with the hands. Incision of the mesorectum and of the *posterior wall* of the vagina from below upward. An assistant might place his forefinger on the abdominal aorta in order to prevent bleeding during the incision of the vagina. After the extraction of the fœtus, the edges of the external wound ought to be brought together and kept in apposition with the instrument invented by Baudelocque for the purpose, or with dressing-forceps surrounded with compresses and tied together by the eyes, so as to avoid sutures. If there should be any hæmorrhage from the vaginal wound after delivery, there would be no other resource than to compress for six or eight hours, with a compressor, one or both internal iliac arteries (p. 25).

The other method (p. 24) consists in a transverse incision from one anterior superior spine of the ileum to the other, through the whole thickness of the abdominal wall, ligature of both epigastric arteries, incision of the mesorectum and the posterior wall of the vagina, as in the previous method. The edges of the external wound are not sutured nor brought together by any means, as the inclination forward of the woman would bring them sufficiently together.

Although Baudelocque comes after Joerg and Ritgen in time, there is no occasion to doubt the originality of his first plan. In his first pamphlet ("*Nouveau moyen*," p. 10), he says that, of all those who tried to modify the Cæsarean section, no one thought of extracting the fœtus through the vagina. In his second ("*Élytrotomie*," p. 9), he states expressly that he first became acquainted with Ritgen's proposition in 1826, through a German physician. We have no difficulty in understanding this. Fifty years ago there was scarcely a Parisian surgeon who was able to read a German book; and while a German periodical (Froriep's "*Notizen zur Natur und Heilkunde*," October, 1824), with that curiosity about everything, wherever it takes place, that is so characteristic a feature of German science, immediately reported Baudelocque's operation, nobody in France had noticed Ritgen's plan and operation.

On the other hand, it seems very likely that Baudelocque, before he operated on the living subject, knew all about Ritgen's plan, even if he did not know that he had tried it in practice. At least, it looks very suspicious that he does not indicate the date of his first operation, and that he made the transverse abdominal incision as advocated by Ritgen, and not his own, longitudinal, along the external border of the rectus muscle, although he expressly says in his first pamphlet that no other part of the abdomen answers so good a purpose for the external incision as the outer edge of the rectus muscle.

Passing to the consideration of the value of his plans and operations, we notice, first, their great number and diversity. Altogether, there are no less than six different methods:

1. Longitudinal incision at outer edge of the rectus muscle, without opening the peritoneal cavity.
2. The same incision comprising the peritonæum.
3. Oblique incision from the spine of the pubis to the anterior superior spine of the ileum, without opening the peritoneal cavity.
4. The same with previous ligature of the external iliac artery.
5. Longitudinal incision through the *linea alba* and the posterior wall of the vagina.
6. Transverse incision from the anterior superior spine of the ileum on one side to the opposite, and longitudinal incision of the posterior wall of the vagina.

Of all his methods he prefers the last ("*Élytrotomie,*" p. 25). Consequently, he abandons the most important point, namely, not to open the peritoneal cavity. Even in his first pamphlet, which is by far the better, although not so important as the second, since it proposed only a plan that had not yet been tested in the crucible of experience, he lays most stress on avoiding the uterus, and accords only secondary importance to sparing the peritonæum.

Accordingly, *Baudelocque occupies a position midway between Joerg and Ritgen, with the disadvantage of being their successor.* As to good description of cases he is much inferior to Ritgen. Most of all, he is inferior to him in so far as Ritgen's case was one undoubtedly fit for the operation, while at least one of his was not. In the first the mother might, perhaps, have been saved by using the cephalotribe, with which he had himself enriched the obstetric art. In the second, both might perhaps have been saved by employing other means. He says himself, in his particularly confident way, that he would have extracted the child alive if he had operated the evening before, *the eclampsia not having taken place then.* But why would he then have operated, since her pelvic brim was four inches in diameter, and since he does not indicate the least abnormality in her labor except the eclampsia?

The child being dead, and no deformity found in the mother, it is singular to read the conclusion he draws from this operation: "The result of this operation," says he, "removes every doubt as to the possibility of extracting a *living* child, through an incision made in the vagina, even in the worst conformation of the pelvis" (*l. c.*, p. 17). He might as well have added that the death of the mother being due to opium, proved the innocuousness of the operation, in itself, to her.

Now we will examine his plans and operations more in detail. His first incision along the outer edge of the rectus muscle would, by far, not make the separation of the peritonæum so easy as that along Poupart's ligament, proposed by Ritgen, and adopted in practice by Baudelocque. Nor would it be so easy to tilt the uterus sufficiently over on the side to make the os present in the abdominal opening. These two disadvantages are by no means counterbalanced by the fact that the epigastric artery is out of the way. This artery can either be tied without any harm, or avoided altogether. As for the vaginal incision, his advice to tie arteries that may be in the way, before making the incision, sounds plausible enough, and ought to be kept in mind by future operators; but it is another question if it would be possible to tie them. On the other hand, it is a useful recommendation to make the incision as low as possible, i. e., as far from the uterine neck as possible, for thereby he not only avoids the ureter and Douglas's pouch, but he comes to the part of the vagina in which there are the fewest vessels. If the contraction of the pelvis be great, it may be difficult to deliver the placenta through the vagina. It is better to withdraw it through the wound.

In his third method, he makes the incision in the abdominal wall begin one inch and three-quarters outside of the spine of the pubis. By so doing he would avoid the epigastric artery, and the modern operations have proved that this may be done; and then it is of course better to do it. At the same time he avoids cutting the round ligament, part of which protruded and had to be tied and removed in Dr. Thomas's second operation. As this organ contains a small arterial twig, and seems to play a part in adjusting the uterus to the penis during coitus, thereby facilitating conception, it is of course better to spare it if it can be done without sacrificing greater interests. Baudelocque's advice to feel for the ligament, in order to avoid it, is of no use in practice. A point of much greater importance is his advice to ligate the internal iliac artery. We will not lay too much stress on the criticism pronounced by Fate when, in trying to tie the internal iliac, he wounded the external, and was obliged to ligate the common iliac artery. Even apart from this unlucky accident, the advice is not a good one. The pelvis being full of arteries with numerous anastomoses, it is very doubtful if the ligature of the internal iliac would prevent hæmorrhage from arteries cut in the vagina. Next, it would be a difficulty more for the operator, and likely to lessen the chances of the operation becoming popular with obstetricians. It would be a serious complication of an operation already grave enough. In his second operation, he says that the wound became gangrenous; perhaps in consequence of the ligature of the common iliac artery. Finally, the recent operations have shown that it is not necessary to interfere with the iliac vessels at all. His alternative to use the *sonde à dard* instead of his fingers seems to be borrowed from Ritgen, as well as the direction of the abdominal incision, although he does not admit owing him anything. As stated above, I do not, however, consider this an improvement. The incision will become too longitudinal. It is better to feel the arteries with the fingers, and the less we use the knife in the vagina the better.

His advice to turn and extract the child instead of waiting till it is expelled is of course a great improvement on his first plan, and his last proposition of covering the abdomen with ice-bags in order to prevent peritonitis is excellent.

We will now consider his *first operation.* Since the os uteri was only an inch and a half, it ought to have been dilated before operating; if it was incapable of being so, this would constitute a contraindication for gastro-elytrotomy.

It is difficult to understand how Baudelocque can have been obliged to ligate an "endless number" of arteries, and in his second case "about thirty." Ritgen met with no bleeding, although he only ligated the epigastric artery. Drs. Thomas and Skene only forcibly compressed the external or subcutaneous epigastric artery (private communication). The only arteries of importance enough to have a name which can be wounded during the incision through the skin and the muscles are the internal epigastric (*A. epigastrica stricte, s. inferior*), and the superficial epigastric (*A. epigastrica superficialis, s. abdominalis subcutanea*). Even if a few muscular branches should spout, they would scarcely require ligature; torsion or temporary compression would be more expeditious and sufficiently safe.

The most noteworthy point in Baudelocque's first operation is the fact that, on making a simple puncture with a narrow bistoury in the vagina, he met with a hæmorrhage that made him give up the operation and have recourse to Cæsarean section; but his own remarks on the subject, as found above, seem to prove that he might have gone on. Nevertheless, this experience, combined with theoretical considerations, engages us to try to avoid all sharp instruments in the vagina. If the surrounding parts are covered with a wet compress, it must be possible to *incise the vagina with the galvano-cautery*, or *the thermo-cautery brought to red heat.* If these instruments be not at hand, common red-hot cautery-irons may be used. The hand in the vagina must then of course be protected by a wet napkin, or some wooden instrument used in its stead.

In his *second case*, Baudelocque operated again on the left side, although there was no reason for so doing, and although he says himself in "*Nouveau moyen*" that the right side is to be preferred, on account of the greater distance between the vagina and the rectum. The left side presents only this advantage, that the operator introduces his left hand into the vagina, and cuts with the right; but, in operating on the right side, he may either cut with the left hand, as Dr.

Skene did, or have an assistant raise the vagina, as Dr. Thomas did.

When he says that he made the vaginal incision from above downward, this means probably a direction parallel to the ureter and the bladder. He does not indicate how long he made the incision, but in his "*Nouveau moyen*" he says that it ought to be four and a half inches, and this can only be obtained in the antero-posterior and somewhat oblique direction. Besides, he says here expressly that the incision is to be *transverse*, and in the upper third of the vagina.

It is curious that Baudelocque tries to deny the fact that his patient succumbed to peritonitis. His theory that twelve drops of laudanum, containing even in the stronger preparation used in France only one and one-fifth grain of opium, paralyzed the bowels and killed her by asphyxia, will not find much favor in a country in which Dr. Alonzo Clark's treatment with enormous doses of morphia is regarded as the best cure for peritonitis. Not improbably the prostration due to gangrene contributed to the bad result. But, since the few lines he devotes to the report of the autopsy do not even allude to gangrene, it may also be that the odor perceived during life arose from other causes. It may be that septicæmia played a part in the process that killed her. If she died asphyxiated from the meteorism, it is noteworthy that nothing was done to relieve this dangerous symptom. Nowadays we would resort to puncturing the intestine with the hypodermic syringe—which had not yet been invented when Baudelocque operated—besides other means, such as large doses of bismuth, turpentine, a long tube introduced through the rectum, etc.

His *fourth method*, previous ligature on the *anterior* iliac and the epigastric artery, is far from being an improvement. According to Sappey[1] and to the true relative situation of the two iliac arteries to one another, the anterior is the external; his advice to ligate the epigastric, which is a branch from it, separately, must be founded in fear of hæmorrhage from the distal part of the main vessel. This ligature of the external iliac is entirely superfluous, and constitutes a serious complication, the more so as the second incision, according to Baudelocque, must be preceded by the ligature of the internal iliac.

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[1] Sappey, "Traité d'Anatomie," vol. i., part 2, Paris, 1850, p. 471.

His fifth method, incision in the *linea alba* and the posterior wall of the vagina, is inferior to those hitherto considered. Not only the peritonæum is opened, but to such an extent that the uterus protrudes, and we know, from Spencer Wells's ovariotomies, that as soon as the incision exceeds five inches mortality increases with every additional inch.[1] Next, the vaginal incision is made in a place that would render both turning and the application of forceps impossible. If there came hæmorrhage from the vaginal wound it would be beyond control, for it is more than doubtful if the patient would be able to stand the compression of one or both internal iliac arteries, which Baudelocque calls the only resource. He is not correct when he says that the *mesorectum* is cut, this name designating the short mesentery found behind the upper part of the rectum. He means, evidently, the fold of the peritonæum forming Douglas's pouch.

His sixth and last method is the least good of all, as it not only opens the peritoneal cavity to a large extent, and makes the awkward vaginal incision just mentioned, but leaves the peritoneal cavity entirely open.

As for results, they could not be worse, all four lives interested in the two operations having been lost.

If I have been obliged to criticise Baudelocque rather severely, it ought not to be forgotten that he always has the merit of having been one of those who originally, and without knowing that the idea was not new, conceived the plan of avoiding both the peritoneal cavity and the uterus in performing gastro-elytrotomy. He has also carefully studied every point of the anatomy bearing on the operation, and is, in this respect, more explicit than any other author on the subject.

The next author we have to deal with is an American. In a letter from Dr. W. E. Horner, adjunct professor in the University of Pennsylvania, dated September 28, 1824, and inserted in William P. Dewees's "A Compendious System of Midwifery" (seventh edition, Philadelphia, 1835, page 598), we find the following statement: "More than two years ago, it (the Cæsarean operation) being then a matter of particular inquiry with me, I was struck by the following proposition of his (Dr. Physick) in regard to it, which made a very strong impression on me, and the justness of which I have ever since been extremely anxious to verify by dissection." He next describes how, in the body of a woman in the sixth month of pregnancy which he dissected, by drawing moderately at the bladder, the peritonæum leaves the cervix uteri "after the same manner that it does in the unimpregnated state," and goes on: "Dr. Physick, founding his idea upon a similar observation made in early life, during the dissection of a pregnant woman, proposes that in the Cæsarean operation an horizontal section be made of the parietes of the abdomen, just above the pubes. That the peritonæum be stripped from the upper fundus of the bladder, by dissecting through the connecting cellular substance, which will bring the operation to that portion of the cervix uteri where the peritonæum goes to the bladder. The incision, being continued through this portion of the uterus, will open its cavity with sufficient freedom for the extraction of the fœtus. All of which the doctor supposes may be done by a careful operation, without cutting through the peritonæum. . . . Dr. Physick proposes that the operation be performed with a moderately distended bladder, and that a catheter should be introduced previously, to ascertain its situation."

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[1] Spencer Wells, "Diseases of the Ovaries," London, 1872, p. 352.

Physick, then, had also, probably without knowing anything about Ritgen's plan, published two years earlier, conceived the idea of avoiding the peritoneal cavity in making Cæsarean section. As he does not aim at incising the vagina, his operation does not properly fall within the scope of gastro-elytrotomy; but it is so nearly related to it by trying to avoid the body of the uterus and the peritoneal cavity, that it may be warrantable to discuss it in this disquisition. The place he chooses has considerable disadvantages. The dissection of the peritonæum from the bladder is a much nicer anatomical undertaking than to separate it from the iliac fossa. Next, the neck of the womb has to be incised, with the unavoidable hæmorrhage. He would not obtain room enough for extracting the fœtus without extending the separation of the peritonæum to part of both iliac fossæ. The opening being in the middle line, he would not be able to facilitate its exit by tilting the uterus, as when it is made on the side. Finally, he would have a severe suppuration going on all around so sensitive an organ as the bladder. Probably Physick has doubted himself of the feasibility or value of this plan, since he never published it.

The last author of this period is Sir Charles Bell. In his "Institutes of Surgery," being a guide for students who attended his lectures, published in 1837,[1] after relating a Cæsarean operation in which he acted as assistant, he continues: "On such a case (one in which the mother cannot be saved by the operation of embryo-ulcia) recurring, time and opportunity being given for the performance of the operation, I would recommend the following precautions:

"1. That the incision through the abdominal wall should be made in a direction from the crest of the pubes obliquely outward. The epigastric artery would require to be tied.

"2. Press up the peritonæum—a matter not difficult in the pregnant state of the uterus—and reach the vagina or uterus under the peritonæum.

"3. Getting at the vagina, or certainly the lowest part of the uterus, make a small incision—introduce a finger—dilate slowly, imitating in this the natural labor; there would be neither pain nor danger by delay.

"4. Break the membranes, and, if the action of the uterus should be as strong as I have seen it in the last case, permit the head to advance; if not, seize and deliver by the feet, as in the operation of turning.

"[Would not such a procedure avoid the breach of the peritonæum? Would it not avoid the fatal hæmorrhage which is consequent on the incision into the body of the uterus?

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[1] American edition, Philadelphia, 1840, p. 341.

Would it not give a better chance of recovery than an incision into the belly of the woman ?]"

It is impossible to know if this idea originated entirely with Sir Charles himself, or if he knew anything about his predecessors. He says neither the one nor the other. It sounds as if the idea were his own. But, on the other hand, there were so many ways by which some knowledge of the subject might have reached him. Even apart from German works and Baudelocque's pamphlets, there are Velpeau's criticism in his "Traité de l'art des accouchements," 1829, translated into English by Meigs, 1831; Dubois's article in the celebrated "Dictionnaire de Médecine," 1834; and Dewees's "Compendium of Midwifery," 1830. All these publications were comparatively recent when Bell published his "Institutes." When we think of the easy intercourse between London and Paris, even in those days, he may have heard something about Baudelocque's plan and first operation. His silence on the subject would not contain any unfairness, when we remember that the work in which his plan is proposed is a brief memorandum for surgical students, and that Cæsarean section always has been a very rare operation in Great Britain.

However this may be, Bell announces at least one idea that is entirely new, and that an excellent one—I mean his advice to *make the incision in the vagina so small as just to admit the finger, and then use this for slow dilatation.* This shows that Bell, more than any of the other surgeons hitherto considered, understood the danger of cutting into these deep parts, rich in vessels and little accessible.

The result of this inquiry into the old history of gastro-elytrotomy is, then, that it has been *invented twice, or perhaps three times*—by Ritgen, Baudelocque, and Charles Bell—*and performed once*—by Baudelocque—the patient dying from peritonitis, and the child having died before the operation.

AUTHORS' OPINIONS.

The opinions expressed on the plans and the essays by authors form part of the history of the operation, and may guide others in the deliberations on the subject, although many of these remarks have lost much of their value, since the second period has been so remarkably successful. For clearness's sake I will divide the authors into two groups, those who upon the whole are in favor of the operation, and those who are against it.

Kilian,[1] in speaking of gastro-elytrotomy, called it "a method of decided importance, even if so far without any encouraging results."

Meygrier[2] says that "Baudelocque's process deserves the attention of practitioners."

Jacquemier[3] devotes many pages to the description of the different methods, and discusses the subject rather fully. He says that most of the objections put forth against the operation are founded on the consideration of the peritonæum in the non-pregnant woman, "but, if we," says he, "think of the changes occurring in consequence of the development of the uterus, we cannot forbear to accord more serious attention to it." The examination of the body of a woman who had died during labor convinced him of the feasibility of the operation. He advocates a longitudinal incision through the vagina and the neck of the womb, made in front of the vessels running on the lateral parts of these organs, and ends by the following judgment: "Doubtless the extensive separation of the peritonæum and the severed tissues would expose the patient much to diffuse suppurations of the subjacent areolar tissue, to peritonitis, to the inflammation of the veins and the lymphatics of the womb and the pelvis, to which the puerperal state particularly predisposes; but it cannot be denied that, in avoiding the incision of the peritonæum, and the entrance of blood from the cut vessels, and of the uterine secretions into its cavity, the woman would be preserved from the most common and the most active cause of death."

Horner,[4] after having described Physick's operation, adds:

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[1] Kilian, "Operative Geburtshülfe, 2te Aufl., Bonn, 1849, vol. ii., p. 714.

[2] Meygrier, "Midwifery Illustrated." Translated from the French, with Notes, by Sidney Doane, New York, 1833.

[3] Jacquemier, "Traité des accouchements," Paris, 1846, vol. ii., p. 503, *seq.*

[4] Dewees's "Compendium," p. 599.

"It is evident that, if this be a practicable operation, it will diminish immensely the tendency to peritoneal inflammation, and will, in fact, put it on a foundation of danger very closely allied to the taking up the external iliac artery, near its origin, by taking aside the peritonæum."

Blundell,[1] after relating, though not quite accurately, Charles Bell's plan, says: "This dilatation is likely to prove of more easy accomplishment, because the substance of the uterus is, perhaps, naturally of a somewhat yielding and obsequious kind, and it is not altogether impossible that this method of procedure may be found desirable, not only in those cases in which the placenta chances to cohere to that part of the womb which corresponds with the abdominal incision, but in every instance in which the Cæsarean delivery is requisite. This proposal, however, requires consideration. Contusions and lacerations might, not without reason, be apprehended. By dilating in this manner we should diminish the extent of the uterine incision."

I have not been able to obtain Duchateau's remarks on Baudelocque's original plans; but, since they were published as an appendix to "*Nouveau moyen*," it is likely that he was in favor of the operation.

The unfavorable judgments are more numerous and more decided.

"*Revue médicale française et étrangère*," Paris, 1824, page 155, insists on the necessity of repeated trials on the cadaver on pregnant women, and demands the proof that the vagina is sufficiently distensible, that no important vessels are injured, that the detachment of the peritonæum is not a greater injury than its incision in two places, that the injury of the peritonæum and the vagina is less dangerous than that of the womb; finally, that the rent in the vagina will not extend into the womb.

Velpeau,[2] after having stated Ritgen's procedure, somewhat inexactly, adds: "In the first place I cannot perceive how it would be possible to incise the apex of the womb without cutting the serous membrane with which it is enveloped; then the difficulties inherent in this proceeding, added to the detachment which would be produced in the iliac fossa, do not appear to me to be of a nature to render the operation at all less serious than those which have been mentioned" (other methods for Cæsarean section). Of Baudelocque's plan he says that he "can scarcely believe that it will be found practicable in a majority of cases, or that the laceration of the vagina, in addition to the disturbance necessarily occasioned in the iliac fossa or in the excavation, would be less redoubtable than the simple and methodical incision of the peritonæum and womb, such as may be performed in ordinary hysterotomy." As for Physick's suggestion, he finds that it is "little worthy of its inventor, and does not deserve the trouble of being discussed."

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[1] James Blundell, "Principles and Practice of Obstetricy," by Thomas Castle, Washington, 1834, p. 355.

[2] Velpeau, "Elementary Treatise of Midwifery." Translated by Meigs. Philadelphia, 1831, p. 514.

The great Paul Dubois, who so long time governed French obstetrics as an autocrat, treats the subject in an addition made to Desormeaux's article on Cæsarean section, in the "*Dictionnaire de Médecine ou Répertoire Général des Sciences Médicales*," 2d edition, Paris, 1834, vol. vii. He thinks that the new methods of Ritgen, Baudelocque, and Physick, "without offering any advantage, present difficulties and dangers from which the other methods of Cæsarean operation are exempt." He censures especially the place of the incision in a part of very small dimensions and of difficult access, so rich in vessels and possessing so little retractility that a serious hæmorrhage is almost certain to supervene.

Cazeau,[1] one of the most esteemed of modern obstetricians, says: "If the incision in the peritonæum could be avoided, effusions of blood or of sanious or purulent matter into its cavity would not take place, and the patient be protected from the most efficient cause of death. This advantage is unfortunately so fully balanced by the difficulties of the operation, by the number of vessels wounded, and by the inflammation liable to follow the extensive separation of the peritonæum, that the method is now *entirely abandoned.*"

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[1] Cazeau, "Theoretical and Practical Treatise of Midwifery," fifth American, from seventh French edition, by William R. Bullock. Philadelphia, 1873, p. 1038.

Moreau[1] insists likewise on the dangerous inflammations that are likely to follow the detachment of the peritonæum, and asks who will guarantee that this membrane, after having been raised, is not torn during the passage of the child? Nay, he goes so far as to question the possibility of carrying this method out in practice.

Bedford[2] mentions Joerg, Ritgen, and Baudelocque, and gives an exact description of the latter's plan as modified in his third method, and finishes by declaring that to him this operation is "the very reverse of plausible."

Tarnier,[3] like Moreau, questions the feasibility of the operation, repeats the criticisms of his predecessors, and declares it to be still more redoubtable than gastro-hysterotomy, wherefore it "has been *completely abandoned.*"

In the "Nouveau dictionnaire de médecine," edited by Jaccoud and other celebrities, in Paris, 1867, vol. vi., p. 697, J. A. Stoltz gives an incomplete summary of Ritgen's, Baudelocque's, and Physick's contributions, which he stamps as eccentricities. According to him it was easy to foresee that there would not be room enough for extracting the child, and that the incision of the vagina and lower segments of the uterus would meet with insurmountable difficulties.

Naegele-Grenser[4] states briefly what had been proposed or essayed by Joerg, Ritgen, Physick, and Baudelocque, and holds it to be superfluous to go into detail about the dangers and difficulties attending gastro-elytrotomy.

I am not prepared to say that this is all that has been written on gastro-elytrotomy in its first period, but it is all I have found while searching in all the works on obstetrics I have been able to lay hands on in public and private libraries. The great majority do not mention the operation at all; most of those that do so, condemn it; a few only are timid defenders. It had been entirely abandoned and almost forgotten. No practical obstetrician had ever thought of it for a generation, even when grappling with the most desperate case. Thus stood things when Dr. Thomas, unacquainted with its existence, invented it again in an improved form, and inaugurated the second period of its history.

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[1] Moreau, "Traité des accouchements," Paris, 1841, vol. ii., p. 356.

[2] Bedford, "The Principles and Practice of Obstetrics," New York, 1861, p. 640, foot-note.

[3] Lenoir, Sée et Tarnier, "Atlas complémentaire de tous les traités d'accouchements," Paris, 1865, p. 276; quoted by Masson: "De la Gastro-élytrotomie." Thèse pour le Doctorat, Argenteuil, 1878, p. 29.

[4] Naegele's "Lehrbuch der Geburtshülfe," 7te Auflage, bearbeitet von Grenser, Mainz, 1869, p. 411.

(*To be continued in the next number.*)

ART. II.—*Acute Inversion of the Uterus. A New Instrument successfully employed in its Restoration.* By JOHN BYRNE, M. D., Surgeon-in-Chief to St. Mary's Hospital for Diseases of Women, etc.

INVERSION of the uterus, following parturition, is admittedly, and under the most favorable circumstances, an occurrence of the most grave and alarming character. When it falls to the lot of an experienced accoucheur to have to deal with a catastrophe of this nature immediately or very soon after the accident has taken place, the chances are undoubtedly in favor of his succeeding, by prompt action, in restoring the displaced organ.

If, however, as has not unfrequently happened, a *partial* inversion or collapsing of the fundus, or, what is more likely, of a single horn of the uterus, takes place after delivery, and, having been unobserved at the time, complete inversion follows after many days, or even hours, the difficulties to be encountered in effecting its restoration are so immeasurably greater, that some of the most distinguished obstetricians of the present century have utterly failed in their attempts at restoration under such circumstances.

As to the *exciting* causes which tend to its production, it is needless to say anything, as they have been fully set forth and discussed, over and over again, by every writer on obstetrics. Not so, however, as regards the causes, or rather conditions, which may, and probably often do, have a potent influence in *predisposing* to the production of such an accident. On these important questions authorities are, for the most part, either entirely silent or apt to indulge in mere speculative surmises. Even so high a pathological authority as Rokitansky disposes of the subject by ascribing inversion of the uterus, in some instances, to a local or circumscribed "paralysis," which is probably, after all, but a condition or a sequence of some preëxisting structural change. Hence, such vague statements and assertions, based upon conjecture, or, at best, negative evidence, but tend to confusion, and can throw no light on the etiology of spontaneous inversion of the uterus.

My object in giving publicity to the following case is two-fold, viz.: 1. Because I believe it to be a typical example of a class to which the term *unavoidable*, *spontaneous*, or even *traumatic*, might be applied with equal and strict propriety; and I have searched in vain for any case of the kind equally interesting and suggestive in a practical sense, or one whose history so pointedly denotes its etiology. 2. In order that the simple contrivance so successfully employed in accomplishing reversion may become the more widely known, and that it may prove in the hands of others hereafter as valuable and as universally applicable in the treatment of similar cases as I believe it to be.

Mrs. S., aged twenty-eight, primipara, when in the eighth month of pregnancy, accidentally received a severe blow on the abdomen from a little child at play.[1] For many hours after this occurrence she suffered severe pain, so much so as to render her unable to move about, and the fœtal impulses, till then quite strong, ceased to be felt during that day and evening. On the following day, however, she felt much better, the fœtal movements returned, and she complained only of a slight soreness over the seat of injury. From this period up to full term nothing transpired worthy of notice.

On the morning of Monday, August 26th, slight pains and other indications of approaching labor appeared, and in the afternoon I was requested to see her. The pains, though trifling and of short duration, were nevertheless regular in their recurrence; and, on examination, the greater part of the lower pelvis was found to be occupied by the presentation, the head; the tissues were soft, cool, and dilatable; but, as there was no appearance of dilatation of the os, and as the bowels had been freely acted upon, the pains were believed to be "spurious," and an anodyne suppository was administered late in the evening.

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[1] This circumstance was not made known until over a week after delivery.

By means of the opiate the pains were somewhat modified, but hardly any sleep was obtained during the night, and on the following day her condition was but little changed; the "grinding" pains continued active and regular, but there was not the slightest evidence of dilatation of the os, though the parts were in a most favorable state for that process. The course pursued on the second night was similar to that of the preceding one, and with a like result, for, on Wednesday, the local condition remained still unchanged. In the same way passed a third night and the following day, Thursday, and even yet the os uteri remained absolutely uninfluenced. On Thursday night a combination of bromide of ammonium, chloral hydrate, and morphia was prescribed, which succeeded in rendering her less sensitive to her suffering, and on Friday morning, *ninety-six hours from the commencement of labor, the os uteri was dilated to the extent of a twenty-five-cent piece only.* This process, so tardy to begin, was equally slow in its progress, there being but little gain during the entire day, and at the expiration of twenty-four hours more the cervix might be said to have been about one-half dilated; nor was it until the afternoon of Saturday, *the sixth day of labor*, that a dilatation of two-thirds the entire extent had been accomplished. Up to this period there was no change in the character of the pains, and *there was, all through, a very remarkable and total absence of all expulsive effort*, while the cervix and soft parts generally maintained that moist, cool, and dilatable condition noticed in the beginning.

It is also worthy of mention that, whether on account of her peculiar nervous organization, or as the result of long-continued suffering and want of sleep, or all combined, she manifested great intolerance of manual interference, so that the most gentle vaginal examination seemed to distress her very much. Her pulse was now becoming rapid and feeble. Her countenance betrayed evidences of great anxiety and physical exhaustion; and as dilatation had advanced sufficiently, though barely far enough to warrant the application of forceps, I determined to deliver. With this view, I requested assistance, and Dr. Bunker was sent for.

Before proceeding further, it was decided to administer a full dose of Squibb's fluid extract of ergot, though, judging from the peculiar history of the case thus far, but little confidence was felt in the power of that or any other medicinal agent over a uterus in a state of undoubted pathological inertia; and this anticipation was soon fully realized, one hour and a half having elapsed without the least evidence of any specific action from that drug.

The patient having been anæsthetized by chloroform, but little difficulty was experienced in adjusting the short forceps, and the delivery of a semi-asphyxiated male child was slowly and carefully effected. On placing the hand over the abdomen for the purpose of exciting uterine contraction, it was now noticed that there was a total absence of any firm spherical body representing the fundus uteri, and no amount of external manipulation seemed to alter this anomalous condition.

After a delay of fifteen minutes, *the placenta, on examination, was found low down in the vagina, and, unexpectedly, entirely detached.* This having been cautiously, and, with a rotary motion, slowly removed, the hand was now carried up into the cavity of the uterus, where it came in contact with a large, soft, mass resembling a placenta, while, externally, a correspondingly large circular depression, having a firm, well-defined rim, could be distinctly felt and outlined. The depressed fundus offered no resistance to upward pressure of the hand within, but every partial withdrawal of the latter was at once followed by a settling down of the entire fundus as before. *Strange as it may appear, there was no very considerable loss of blood, certainly no active hæmorrhage.*

At this juncture the condition of the patient became most alarming. She grew deadly pale, and her respiration was hurried and weak; the radial pulse, first exceedingly small and rapid, in a few moments ceased to be distinguishable, the features became pinched, the extremities cold, and fatal syncope seemed inevitable. Under these circumstances all further efforts in behalf of the partially inverted uterus had to be abandoned, and our entire attention was thenceforth directed toward rescuing the patient, if possible, from impending death.

A hypodermic injection of thirty drops of brandy was at once given, and eight ounces of the same thrown into the rectum; other restorative measures suggested by the emergency were also resorted to, yet, in spite of all, a period of suspense, seemingly interminable, had to be endured, for it was not until the lapse of an hour and a half that the pulse could again be distinguished at the wrist. At 1 o'clock A. M. (seven hours after delivery), reaction had become sufficiently established to warrant a hope that the dangerous crisis had passed; and by 6 A. M. she expressed herself as feeling comfortable, though there was great restlessness, manifested by an uncontrollable desire to change her position. During the succeeding twenty-four hours she continued in an exceedingly prostrated state, though free from pain, and her pulse ranged from 140 to 150; *still, there was no hæmorrhage*, the flow being but little in excess of an ordinary lochial discharge.

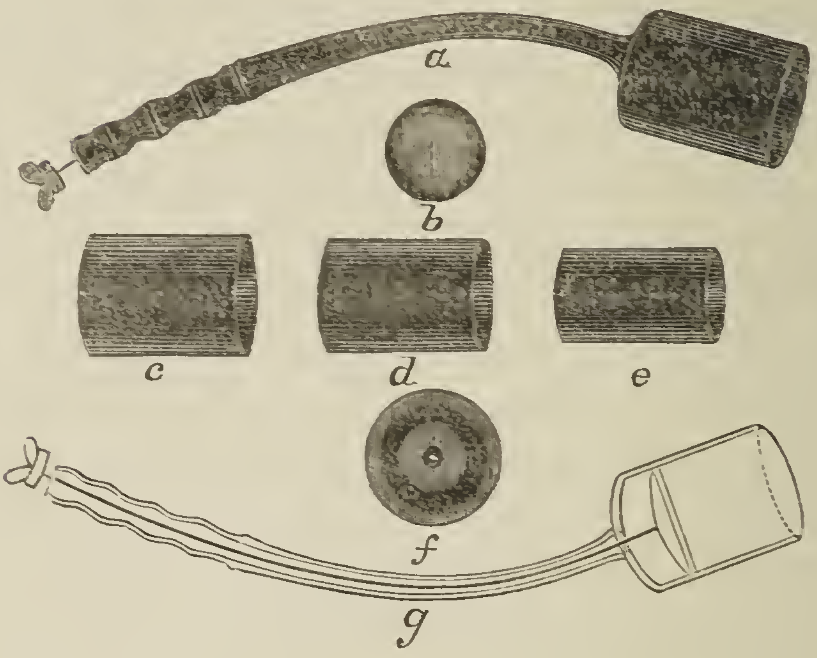
By Monday morning her condition had decidedly improved, and, feeling anxious regarding the position of the uterus, lest pains should return and thus convert a partial into a more complete inversion, I proposed to risk the administration of an anæsthetic, and adopt some mechanical means for supporting the fundus. Before doing so, however, I requested that Dr. Thomas should be sent for, which was done, but other engagements rendered it impossible for him to meet me until the following day, consequently, it was decided to postpone interference until we could have the benefit of his counsel and aid; besides, there was, thus far, no reason to fear any aggravated degree of the uterine difficulty, and every care was taken to keep her perfectly quiet. In the course of the afternoon, however, she began to complain of distressing pains resembling, she said, those preceding delivery, and which, in spite of opiates freely administered, kept on steadily increasing until 10 P. M., when, after an unusually severe one, referred to the sacro-lumbar region, almost entire and continued relief followed. A digital examination was now made, when the entire vagina, or at least its upper two-thirds, was found to be completely packed with a large fleshy mass. The entire fundus had passed through the cervix, thus converting, at once, a partial into a more or less complete inversion.

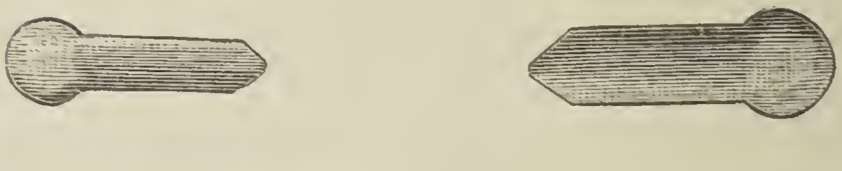
On Tuesday, September 3d, Dr. Thomas saw her in consultation, when it was decided to make an effort to restore the uterus. The patient having been anæsthetized, he (Dr. Thomas) proceeded in the usual way to effect a return of the fundus by taxis; but he had not continued his efforts very long before he became convinced that restoration was *then* neither practicable nor possible. The inverted organ was not only very large, but extremely soft, and liable to give way from pressure of the fingers. A second attempt was next made by myself, with no other result than a full confirmation of the opinion and statements of Dr. Thomas.

It was now decided to allow another week to pass over before any further attempt at reversion should be made, hoping to find, by that time, some improvement in her general condition; and that the uterus, if not reduced by involution, might possibly be found more firm and elastic. Moreover, we felt that no possible harm could come to the patient by such delay, particularly as there was no hæmorrhage; that the case was, in many important respects, a very grave and anomalous one, and, consequently, one involving deep responsibility; and that an absolute failure to restore the displaced organ would most assuredly doom the unhappy sufferer to a long period—perhaps a lifetime—of great distress, if not to death.

Wednesday, September 11th, being *the eleventh day after delivery and partial inversion, and nine days after the entire fundus had passed through the cervix*, was appointed for another trial at reduction by taxis, and, in the mean time, the instruments here illustrated were devised.

As considerable delay was anticipated, ether was the anæsthetic chosen, and, previous to its being administered, a hypodermic injection, representing $\frac{1}{6}$ grain of morphia and $\frac{1}{60}$ grain atropine, was given. Present, Drs. Thomas, Bunker, Santoire, and Hesse. The patient having been placed on a table, and maintained in a position somewhat similar to that chosen for lithotomy, I cautiously passed the instrument with large-sized cup (2½ inches inside diameter) within the vaginal orifice, where it received, and snugly accommodated, the inverted uterus to the extent of about one-half its estimated length. The abdominal plugs were taken charge of, and their proper application directed, by Dr. Thomas, efficient aid being also rendered by the other gentlemen present. When the entire uterus was raised up, and the vagina thus put upon the stretch, there was no difficulty experienced in finding the circular depression marking the cervical stricture, about midway between the umbilicus and pubic symphysis. An abdominal plug for dilatation and counter-pressure, and of suitable size, being now firmly fixed over the concavity, so as to insure full control of the uterus at both extremities, the upward pressure was somewhat relaxed, in order to avoid undue vaginal stretching. Steady pressure was now brought to bear upon the fundus by the repositor, and kept up without variation for a period of probably ten minutes, when Dr. Thomas announced his impression that the cervix was beginning to relax and enlarge.





The movable bottom was, consequently, screwed up to the extent of an inch, so as to shallow the cup in proportion to the surmised progress made. The same steady, upward pressure was again resumed, and continued about ten minutes more, when a very decided advance was observed, not only in the increased size of the abdominal depression, but also because of the shorter distance noticed between the handle of the instrument and the perinæum. Once more the bottom of the cup was projected forward, and now to its fullest extent, while pressure was made by a rolling motion, when it was announced that the rim of the concave disk could be distinctly felt through the abdominal wall. The instrument being now withdrawn, Dr. Thomas introduced his hand into the uterus, when he found the entire organ restored, with the exception of a small egg-shaped projection of the fundus, which readily yielded to a finger.

There was no loss of blood during the entire operation beyond the lochial flow which was still in progress, and the patient at date of report (September 23d) is fast convalescing.

It may not be amiss to state, in conclusion, that about a week ago Dr. Thomas had an opportunity to test the value of my instrument in a case of chronic inversion, and where the small-sized cup was substituted. The following note has since been received from him:

294 Fifth Avenue, New York, *September* 20, 1878.

My dear Doctor: On the 16th of this month I used your uterine repositor in an attempt at reposition of an inverted uterus. I am happy to state to you that it fulfilled all indications very admirably, and that the displaced uterus was completely restored to position by its aid with rapidity and safety.

Hoping that the case of inversion which I so lately saw reduced by the same instrument progresses favorably, I remain,

Faithfully yours,

T. Gaillard Thomas.

Dr. John Byrne.

Though the success thus far attending the use of a simple contrivance, hurriedly devised and rudely constructed, is very gratifying, I regret that time will not at present permit of my describing an additional aid, or rather a modification of the manner in which abdominal counter-pressure and the dilating effects of the conical plug might be even more effectually carried out.

A little device for this purpose will be described hereafter.

Clinical Records from Private and Hospital Practice.

I.—*Case of Typhoid Fever; Congestion and Hæmorrhage; Treatment by Cold Water.* By J. W. Kibbee, M. D., New York.

In the spring of 1878 I took my family from this city to Highlands, Macon County, North Carolina, in order that they might reap the benefits offered by its climate, which, I am fully persuaded, is the best in North America for chest diseases — functional or organic — and for nervous affections. These Highlands are near the southwestern terminus of the Blue Ridge Mountains, and rise abruptly to what is called a plateau—really an undulating level—whose average height above the ocean is about 4,000 feet, with numerous peaks shooting up a thousand feet or so. The atmosphere of this elevated region is almost "moteless" (Tyndall), not one of the zymotic diseases having ever been known to originate in it, due doubtless to the fact that the air is of the upper strata, unmixed with that which floats over the surrounding low country. Just below this plateau, however, at an altitude of some two thousand feet or less, fevers of every type common to our country prevail. I had not sojourned long at Highlands before receiving calls for the treatment of typhoid fever. The case I am about to present is peculiarly interesting on account of its apparently mild beginning, and its resulting in congestion and hæmorrhage before the patient or his friends were aware that there was fever at all. On the 4th of July we had a little celebration at Highlands, and the patient, Evan Nicholson, a school-teacher, aged twenty-five, rode from his home in Oconee County, South Carolina, fifteen miles, on horseback with his friends. In conversation with me that day he stated that he had felt unusually bad for several weeks, that there had been for some time a tenderness in the hypogastric region, and occasional vertigo, with a dull headache that was almost constant. He did not ask for a prescription, but said he would consult me soon in regard to a chronic nasal catarrh. I afterward learned that on his return home the jolting of horseback-riding occasioned great pain in his bowels and head. . . . At daylight on the morning of the 25th of July I was called in haste to visit him. The messenger, his brother, stated that he had kept up about the house all the time since the 4th, until the morning before, having taken large quantities of patent pills, salts, oil, etc., to keep his bowels open, that he had had a slow, weak pulse, and, although the weather was very hot, was inclined to keep his coat on during the heat of the day. At about 12 M. the day before there commenced a great excitement in the circulatory and respiratory systems, the pulse running up to 140 per minute and the respirations to 30. This account of the circulation and respiration is a matter of judgment formed from the accounts of the patient and his friends; the heat, it was also said, was intense. At 7 P. M. of that day, the 24th, there was a dejection of about two quarts of blood, very putrid and offensive to the sense of smell. Several dejections followed, resulting in a loss, at midnight, of a large quantity of blood, when syncope occurred. I found him, eight hours afterward, with very cold extremities and just a thread of pulse at the wrist. Notwithstanding the coldness of the limbs, the hypogastrium was quite hot, so a thickly-folded cloth was wet in cold water and laid over it, and the legs and feet, arms and hands, were wrapped in heated flannels, both being renewed at short intervals. An infusion of the leaves of the *hamamelis Virginica*, well sweetened with loaf-sugar, was given, two table-spoonfuls every half-hour. No more dejections followed; the patient remained in the supine position until four o'clock on the morning of the 26th, when reaction, which had been slowly returning, was fully established. The pulse was then 130 per minute, strong but wiry, and the heat, having been to a great extent controlled by the cold, wet compresses over the bowels, was general, and rapidly evolved by the exalted vital action. Having, unfortunately, broken my thermometer, I had no means of determining the exact temperature, and was compelled to fall back upon a plan I adopted many years ago while treating fever by the cooling process. After considerable experimenting, I found that in fever of any name the thermometer would show a heat of 98½° to 99° Fahr. when the skin of the whole trunk was kept, by either pouring or packing, so that it felt cool to the hand of the healthy attendant.

At four o'clock, then, on the morning of the 26th, twenty hours from the beginning of the treatment, and twenty-eight from the period of syncope, when the hæmorrhage ceased, thorough treatment of the fever was begun by placing the patient on a well-filled straw bed, folding a sheet so that it would reach entirely around the body from the hips to the armpits, and wetting in spring water at about 60° Fahr. The patient, still supine, was gently raised to a recumbent position, the wet sheet laid on the bed under him, when he was placed upon it and it was folded entirely around the trunk. For the eight following days the wet sheets were cooled and freshly applied every twenty minutes to half an hour, according to the exacerbations of heat, as determined by the hands of the attendants, placed upon the skin of the trunk. The extremities all this time were kept warm by the use of flannels, and woolen blankets when needful. About thirty hours after the syncope an enema was administered, composed of an infusion of hamamelis leaves and mucilage of slippery elm. The patient was quiet while fully two quarts were gently injected, which thoroughly cleansed the lower bowels from the clotted, putrid blood that remained in them after the syncope and reaction.

Twenty-four hours afterward a mild cathartic was administered, composed as follows: ℞. āā senna, ʒss; jalap, ℈j; caryoph., gr. ij; aqua ferv., ℥iv. Sweeten with coffee or loaf-sugar, and drink warm. This brought away in a few hours the putrid blood that remained above the reach of the enema, and with it considerable fecal matter. No other medicine was given save a weak infusion of the hamamelis, and, for the first three or four days, an occasional spoonful of the slippery elm. The pulse, after the first application of the cold wet sheet, was about 120 for eight days, after which time it fluctuated between 90 and 100 for two weeks, when it became full and soft at 75, the patient being then clear of morbific matter. The appetite was good, even keen, after cooling the heated blood on the morning of the 26th ; and gruel, fresh milk, and fruit — apples, peaches, and blackberries — were taken freely, fully enough to support a well man if lying still. After the first movement from the medicine, the bowels acted every morning, under the stimulus of a warm-water enema, the fecal matter being of the proper consistence, color, and quantity. The urine was abundant, rather highly colored, and strongly scented. The sleep was quiet and refreshing, and there was no nervousness or delirium, the tongue was clean, and the breath not particularly offensive. For the first two weeks the patient was wholly unable to turn himself in bed, but gradually gained strength, so that three weeks from the hæmorrhagic crisis he was able to sit up in a rocking-chair for an hour at a time, bear his weight on his feet, and walk across the floor with assistance. There are several points of interest attaching to this case, which we will now consider. In the first place, we notice that the young man's vitality was so depressed or oppressed by inimical matters or conditions, that it had not sufficient force to manifest the two essential phenomena of fever—the exalted action of the heart and lungs, and the consequent excess of heat—hence the slow, weak pulse, and the constant chilliness of the surface until the reaction after the hæmorrhage and syncope. We see that the cause of the congestion was the oppressed vitality, or the inability of the heart to drive the blood along through the intestinal capillaries, where it lodged, became devitalized from want of oxygenation, and was at last driven through the relaxed depurating surface into the prima via by the aroused and almost expiring efforts of the vital force, producing hæmorrhage of the bowels, a very grave symptom, not so much on account of the loss of blood as by showing the little vitality in that remaining, and the amount and power of the cause of vital disturbance. We notice in this case that there was vitality sufficient to cause reaction from the syncope, or contractile power enough to close the relaxed walls of the capillaries after the devitalized blood had passed through. We see that after the expulsion of the devitalized blood there was power to cause the heart to beat with considerable force at 130 per minute, the lungs being excited to a correspondingly increased action, causing a rapid evolution of vital heat.

Let us consider for a moment the results of the cooling treatment in this case. In cases of local injuries, and severe operations with the knife, as Dr. Thomas has shown, the exalted action of the heart and lungs consequent upon the local lesion is greatly reduced upon removing the excess of heat; but, where the cause of the vital disturbance affects the whole system—as the zymotic causes, for instance—the reduction of the cardiac and pulmonary action by the cooling process is but slight. In typhoid, in pneumonia, in scarlet fever, in yellow fever, and in other high grades of vital action, I have rarely seen the cardiac action lessen more than ten beats per minute upon the reduction of heat from 4° to 6° by the cooling process. In this case the pulse fell from 130 to 120 upon cooling the blood, and remained there for about eight days, when it gradually fell off to the normal beat, the evolution of heat decreasing in exact ratio. We are shown by this that, while the circulatory and respiratory action is nearly double the normal, if the excess of heat be removed as fast as it is evolved, every depurative function is performed as perfectly as in health; and, what is of equal consequence, digestion and assimilation are but slightly disturbed. During the eight days of cardiac and pulmonary excitement, this young man ate heartily and with excellent relish, and the proof that digestion and assimilation were perfect was the fact that the fæces were natural in color, consistence, and quantity. Were this case as given here, were all the very numerous and varied cases of fever that I have treated on the cooling principle for many years brought only into the 'count as proof of the great benefits of equalizing the temperature with water in all vital disturbances, there might be room for question, for doubt, in this matter; but the medical world is finding similar proofs of the value of water as an antipyretic from all quarters of the globe; and the conviction is becoming settled, in the minds of the thoughtful in our profession, that we are on the eve of a great revolution in the treatment of fever—a revolution which will practically sweep away all the distinctions heretofore made on account of the inherent differences in the vital or non-vital causes of our vital disturbances—variola, rubeola, scarlet fever, yellow fever, etc., for instance—and place the practice of medicine on a sure foundation, a practical basis, one that cannot be mistaken in its primary and great central requirement, the normalization of the temperature with water. When this is done, as is easily seen, none of the morbid symptoms attending fever of every name will occur at all, since they can all be traced directly to the influence of excessive heat, and in no instance to the exalted vital action.

This young man was treated by the frequent packing of the trunk with the folded sheet, made dripping wet, the straw bed being changed every day; but it occasioned a great amount of care from several assistants, since he was wholly unable to help himself in the least for a long time. This extra labor would all have been obviated had the fever-cot been available. Some two weeks after the hæmorrhagic crisis of Evan, his brother, James Nicholson, aged 30, came down with the same disease, but in a much more violent form, he being possessed of a larger share of vitality, which, of course, showed a greater resistance to the offending causes. This time a fever-cot was procured, and the excess of heat was controlled with comparatively little trouble, the patient going through the whole period of exalted vital action with a good appetite, the digestive, assimilative, and depurative functions being well performed. Can we do less than form the conclusion that all the morbid phenomena attending fever of any name are directly due to excessive heat, and that its removal with water is a sure remedy?

Notes of Hospital Practice.

PRESBYTERIAN HOSPITAL.

Ligature of Lingual Artery near its Origin—Cancer of Tongue—Removal.—An interesting case of epithelial cancer of the tongue occurred in the service of Dr. George F. Shrady, and was unique from the fact that the lingual artery was tied near its origin before the tumor was removed. The history of the case up to the time of the operation was given in the report of the proceedings of the Pathological Society (JOURNAL, page 192, current volume). The patient was a woman, aged thirty-two years. She suffered from cancer of the tongue for eight months before entering hospital, and on admission it was found that she was unable to eat, and had acute neuralgia of the affected side. The disease occupied the left side of the tongue for its whole extent, as well as the corresponding part of the mouth.

Dr. Shrady proposed removal, as a palliative if not a curative procedure, and in order to admit of a thorough extirpation suggested the ligature of the lingual artery in the first part of its course.

On June 25th the patient was anæsthetized, and the preliminary operation of ligature commenced. After a skillful dissection the vessel was secured and tied under the angle of the jaw and external to the digastric triangle. The operation of removal of the growth was then attempted, and the whole mass removed through the mouth. This was rendered much more simple than otherwise it would have been by the fact that the ligature of the lingual rendered the operation nearly bloodless.

The report of the case in the proceedings of the Pathological Society gave the details of the operation and the condition of the patient for twenty-four hours after the operation. The subsequent history of the case was as follows: After three days the patient could swallow liquids without difficulty The wounds of the mouth healed completely in ten days, leaving no sign of disease. Her articulation improved, notwithstanding the loss of half of the tongue. This was accounted for from the fact that in the operation the attachments of the genio-hyoglossus were left intact, and thus the patient was enabled to protrude the tip of the tongue.

Two weeks after the operation, from an imprudent exposure, the patient was seized with a chill which ushered in a pneumonia of the upper lobe of the left lung. The pulmonary disease passed into acute phthisis, and after a month death took place.

The operation was in every respect a success. It was undertaken to palliate if not cure the patient. It completely fulfilled the first indication, inasmuch as the obstinate neuralgia was completely relieved—the deglutition and articulation improved, and at the time of death no evidences of return were present. The special point of novelty, however, was the ligature of the lingual in the first or dangerous portion of its course, thus cutting off the blood supply to the base of the tongue. The absence of hæmorrhage simplified the operation very much and allowed of a careful dissection of the diseased tissues.

RIVERSIDE HOSPITAL, BLACKWELL'S ISLAND.

Tubercular Meningitis—Atrophy of the Kidney.—An interesting case of tubercular meningitis with atrophy of the kidney has recently been under the charge of Dr. J. J. Delany, Resident Physician. A boy, aged ten years, was admitted to hospital with a diagnosis of scarlet-fever. He had been sick three days, but before that time had been in his usual health. The attack began with headache, fever, and sleeplessness, and continued without change till he entered hospital, August 24th at 2 P. M. On examination the face was found to be flushed, skin dry, pupils normal, temperature 103½°, pulse 160. At 4 P. M. temperature 103°, pulse 140. Ordered quin. sulph. gr. xxv. After twenty minutes a portion of the quinine was vomited; 9.30 P. M., temperature 100°, placed in a bath of water at the ordinary temperature, and left there four minutes; 10 P. M., temperature 100°; 11 P. M. became delirious. The delirium was of an active type and characterized by sharp cries. The pupils were widely dilated, eyes staring. There was also external strabismus. Hearing and taste were impaired. The defect in the latter sense was recognized from the fact that, after calling for ice, he threw it away, saying it was dead ice. The symptoms continued with but slight change during the night. There were, however, several intermissions. The temperature was taken every two hours during the night. It ranged from 100½° to 101°. The treatment pursued from 11 P. M. was to apply cold cloths to the head.

August 25th.—8 A. M., temperature 100¾°. Still delirious, but quieter. Cold applications continued to the head. 11 A. M., ordered ol. tiglii gt. i.; 5 P. M., temperature 100¾°; 7 P. M., temperature 102°. During the night passed into a semi-comatose condition, which continued till 3 A. M. August 26th, when marked improvement in the general symptoms was noticed. During the morning evidences of pneumonia on the right side manifested themselves. 11 A. M., temperature 102½°. Ordered quin. sulph. gr. xxx. 12 noon, temperature 103°; 1 P. M., temperature 101°, pulse 104; 3 P. M., temperature 100½°; 6 P. M., temperature 103°; 8 P. M., temperature 103°, pulse 124, respiration 48. Ordered quin. sulph. gr. xxx., 9.30 P. M. temperature 101°. 9.45 P. M., died in a convulsion.

During life no urine could be collected. It was drawn by catheter after death. It did not contain albumen.

Autopsy: Brain.—Meninges congested; around the vessels numerous whitish discolorations of the pia mater. These changes were found both at the base and over the upper portion of the brain.

The lateral ventricles contained half an ounce of fluid in each.

The left kidney was found atrophied, being about one-fifth its normal size. It was much roughened, and flattened from before backward. In it there were numerous large cysts.

About an inch above the entrance to the bladder, the ureter was found completely obstructed by a smooth calculus half an inch long. Above the obstruction the ureter was thickened and dilated sufficiently to admit the little finger. The pelvis was also dilated, and the cortex of kidney gone.

Right kidney hypertrophied, being larger than the same organ in an adult. The relations of its parts were normal.

The left pleura presented evidences of recent lymph over an area of three inches. Extending inward from the exuded lymph, a spot of catarrhal pneumonia was found. This was about the size of a hen's egg. There was in the apex of the right lung a small patch of fibrous phthisis.

The case was of interest not only for its carefully recorded temperature, but in regard to the condition of the left kidney. There was nothing in the history to indicate the time at which the obstruction of the ureter took place. It is fair to assume, however, that it was of slow growth. The compensating hypertrophy in the other kidney allowed of the proper discharge of the renal functions.

CHARITY HOSPITAL.

Suspected Epulis resulting from a Concealed Tooth.—A girl fourteen years of age came under observation, suffering from a hard tumor of the upper jaw, located beneath the angle of the nose. It had been of slow development and unaccompanied by pain. The skin on the surface was congested, but no hæmorrhage had taken place. It was supposed that the disease was either epulis or exostosis, and a preliminary operation was practised to form a correct diagnosis. After making an incision into the skin, and forming an opening in the hard tumor by means of the bone forceps, a cavity was found having in it an incisor tooth. This was perfectly developed, and loosely connected to the maxilla by connective tissue. At this stage of the operation it was obvious that the tumor of the maxilla was due to the concealed tooth. It was noticed also that one of the incisor teeth was wanting below the tumor, and it was readily understood that the tooth, instead of passing down in the usual way, had become involved between the hard palate and anterior surface of the maxilla.

It is difficult to understand the manner in which the tooth had become disconnected from the alveolus, and how it formed a connective-tissue attachment with the maxilla.

Proceedings of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Second Annual Meeting.

OFICIAL REPORT OF THE PROCEEDINGS BY THE SECRETARY, DR. R. W. TAYLOR.

THE second annual meeting of the American Dermatological Association was held at the Grand Union Hotel, Saratoga Springs, Tuesday, Wednesday, and Thursday, August 27th, 28th, and 29th, 1878. There were present Drs. James C. White and Edward Wigglesworth, of Boston; C. Heitzmann, H. G. Piffard, G. H. Fox, and R. W. Taylor, of New York; S. Sherwell, of Brooklyn; L. A. Duhring and A. Van Harlingen, of Philadelphia; and I. E. Atkinson, of Baltimore.

First Day—Morning Session.—The Association met at 9.30 A. M.; and, after a business meeting with closed doors, the scientific proceedings were inaugurated with the following introductory remarks by the President, Dr. WHITE:

GENTLEMEN: It is my pleasant duty again to greet you and to announce that the second annual meeting of the Association is open. I have but little to add to what was said at the beginning of the session at Niagara a year ago with regard to the important purposes of the society. The time which has intervened has only confirmed me in the opinion then expressed. Systematic progress in dermatology in certain directions, where reform is most needed, moreover, can be accomplished only by concerted action, and this is the only working body in existence by which this may be undertaken. I need not again to refer to the nature of these faults in our special department of medicine. Two standing committees were appointed, you will remember, at the last meeting, from which we may expect important aid in their correction; one upon classification and nomenclature, the other upon statistics. The difficulties met with by each of them in the very beginning of their work shows the necessity of their creation. Members of the former, in registering the valuable results of their collecting, find themselves impeded for want of a satisfactory system under which they can be recorded; while the latter, in discharge of their duty to prepare such, find hardly an accepted basis of agreement broad enough to serve as a starting-point for their labors. There can be no doubt, however, that the results of their work, incomplete as they at present are, will commend themselves to the Association and insure their perpetuation.

Two other objects in the interests of dermatology we should also constantly bear in mind: to secure proper instruction in our branch in the schools of medicine, and the establishment of fit hospital accommodation for the study and treatment of skin diseases.

It is pleasant to be able to refer to the advance of our specialty through the contributions of individual members of the Association during the past year. I have prepared a list of the articles published by them in addition to those presented as an appendix to the president's address at our last meeting, and, as you will see, it forms an extensive and valuable literature. A considerable proportion of it consists of the papers prepared for the Association, and demonstrates how satisfactorily one of its aims has been fulfilled.

During the past year we have lost one of our number by death, Dr. Durkee, of Boston, the oldest member of the society, and one of the earliest dermatologists of the country. A list of his works will be found in our last transactions.

It remains for me only to announce that the Association is ready for business in accordance with the programme before you.

The first paper read was by Dr. Atkinson, on "The Pigmentary Syphiloderm." His object, he said, was, first, to briefly review the characters of the pigmentary syphiloderm, and, second, to give some account of a number of cases of it which had occurred under his own observation. A lucid account of the affection had been given by Hardy, and his views had been fully supported by Fournier. According to the latter authority, this peculiar pigmentation was liable to occur at any time from the fourth month to the end of the second year of a case of syphilis. It occurred almost exclusively in females, and was usually found on the neck (about the lateral surfaces). It consisted of faintly-colored spots, varying from the size of a split-pea to that of a finger-nail. Interspersed among these there were spots of natural skin with a pigment border; so that sometimes a regular network was formed. The pigment-area was of a *café-au-lait* color, and, consequently, paler than tinea versicolor or cloasma uterinum. The spots are smooth, not raised above the surface, and without desquamation. There are no subjective symptoms. The affection was remarkably rebellious to treatment; not infrequently lasting for months, and even years.

The first case mentioned was that of a girl of seventeen, who, five months before she came under observation, had had sores in the vulva, followed by an eruption in the skin, as well as suppurating buboes. On a physical examination, mucous patches were found, and on the thighs and abdomen the remains of a previous syphiloderm were seen. There was an adenopathy in the cervical region; and on the lateral surfaces of the neck and on the shoulder there were numerous spots of apparently abnormal whiteness, from six to twelve millimetres in diameter. On more careful examination, however, it was found that these were, in reality, patches of natural skin, which were surrounded by areas of pigmentation. The tint of this discoloration was decidedly lighter than that seen in cloasma uterinum. There was no itching; but the patient was mortified by what seemed to her the dirty appearance of her neck. An appropriate course of mercurial treatment, both internal and external, was instituted, and the other syphilitic symptoms at once began to improve; but the maculæ did not disappear, although they gradually grew fainter in color.

Almost a year afterward she was seen, and it was found that the pigmentary syphiloderm had by this time disappeared. In the meanwhile she had married, and was then three months pregnant.

The second case was that of a female with a fair complexion, and nineteen years of age, who was first seen June 19, 1877.

She had a vaginal discharge of three months' duration, a fading roseola, and a painless inguinal adenopathy.

After seven months there appeared spots of discoloration on both sides of the neck, somewhat symmetrical in their grouping; but there was no network formed, as in the preceding case. By March the maculations had grown somewhat lighter in tint, but had not disappeared. In the mean while she had had an attack of iritis, and mercurial treatment had been kept up all the time. At present there are faint traces of the pigmentation still left.

The third case was a somewhat anomalous one, as it occurred in a light mulatto, and the pigmentation was not situated in the usual locality. On the inner surfaces of the hands and knees there were apparently light-colored patches, which looked very much like old scars from burns. At first it was thought that there was true leucoderma in the parts; but when a more careful inspection was made it was ascertained that they were only islets of natural skin inserted in areas of discoloration, the tint of which was almost black. Consequently they appeared whiter than normal. A well-marked network was thus formed, with a distinct border, and a general piebald effect was produced. The patient was suffering from the usual symptoms of constitutional syphilis.

Dr. Atkinson was of the opinion that the affection would probably be more frequently observed than it is at present (and even in males), if it were looked for with greater care. It was possible that it might be confounded with cloasma uterinum or cachecticum, or with the stains of roseola. Tinea versicolor, however, was always distinguishable on account of the presence of the parasite. The stains left after roseola more nearly resembled it than any other condition, but when these were present there was usually a clear history of preceding hyperæmia; besides, they were of shorter duration.

He considered it unfortunate that Dr. G. H. Fox should have called the pigmentary syphiloderm vitiligo; since, even though the inclosed spaces contained less coloring matter than normal, there were equal claims for more than the natural amount of pigment in the surrounding areas to those for the loss of it within these. Besides, the leucodermatous condition was by no means always seen.

It was claimed by some that the discoloration was not syphilitic, because it was not affected by mercury; but it was well to remember in this connection that pigment readily disappears after an acute hyperæmia, but that after an old trouble, like chronic eczema, for example, it may last for years. Non-vascular pigmentation was proverbially obstinate.

Dr. HEITZMANN thought there was no reason to form a new class of syphilitic skin-disease. He had seen repeated cases of the maculate form of syphilis, in which there was, apparently, pigmentation from the very beginning. In such cases we might very readily overlook the hyperæmic stage.

Dr. DUHRING said that ten years ago he had seen two cases in Paris which Hardy had called pigmentary syphiloderm, but he thought that the discoloration was altogether too faint to render them satisfactory ones. Since then he had for years sought for a case in the extensive venereal wards of the Philadelphia Hospital, but had never seen a single one until within a few months past. The pigmentation in this patient corresponded exactly with the admirable description given by Fournier, and he could not doubt that it was really a case of pigmentary syphiloderm. When he saw the patient there were no manifestations whatever of syphilis present, but there was a clear history of the disease previously. In three months there was no change whatever in the affection.

Dr. SHERWELL had recognized this kind of pigmentation, but could not connect it especially with syphilis. He was in the habit of putting such cases down as cloasma vitiligo. Within the last week, however, he had seen a syphilitic infant in which there was a pigmentary deposit corresponding with the affection described in Dr. Atkinson's paper.

Dr. ATKINSON thought that it did not apply to children, and that the discoloration in this case was in all probability due to the child's cachectic condition.

Dr. FOX remarked that the points at issue could only be determined by dermatologists everywhere making careful observations and then comparing notes. He thought that, while syphilis undoubtedly sometimes caused the affection in question, an undeserved dignity had been conferred upon it by classifying it as a variety of syphilis, and that we had no right thus to make a distinct class of it. Pigmentary syphilis was probably to be regarded as a vitiligo, with staining by melanin, from deterioration of the pigmentary elements of the blood. Certainly vitiligo, as ordinarily defined, corresponded exactly with the so-called pigmentary syphiloderm. It was a fact, however, he said, that all the cases of the latter which he had seen occurred in syphilitic subjects, although one of the patients, a young man, claimed that the mottling observed had existed from childhood, and consequently before his syphilitic trouble.

Dr. **Piffard** said that he had never been able to recognize it as a distinct syphilitic affection, and that we met with vitiligo corresponding with it both in syphilitic and non-syphilitic patients. Dr. Atkinson had spoken of vitiligo as being progressive and permanent; but he thought this statement needed modification. Sometimes there was a period in the disease when it became stationary; and, again, pigment sometimes returned spontaneously.

Dr. **Taylor** called attention to the fact that the affection had been principally noticed by French authors, and remarked that it was met with, for the most part, in the Latin races, who had tendency to pigmentary changes of the skin. He had himself observed it in a number of patients both syphilitic and non-syphilitic, and had seen it both with and without the whitish patches. A point in favor of its not being specially of syphilitic origin was the fact that it occurs by preference in a region which is ordinarily notably free from syphilitic manifestations. His conclusion was that it was met with principally in individuals of dark complexion, having a tendency to the deposit of pigment (in the Latin races particularly), and that its connection with syphilis was only as a rather rare coincidence. It is certain that severe constitutional diseases did produce more or less extensive pigmentary deposits. He thought Dr. Heitzmann's remark very apposite, that roseola was often followed very quickly by pigmentation, and mentioned a case in Charity Hospital, in which *café-au-lait* spots followed a delicate roseola within a week. In another case (the patient being an Austrian) white spots appeared in the exact location of a preceding roseola. In regard to the permanency of vitiligo, he knew of a physician who has vitiligo of the hands, which goes away in winter and returns in the summer. In winter his hands show no abnormality of color.

Dr. Atkinson believed that the spots which are left after roseola ordinarily fade very rapidly, and thought it difficult to determine whether in true pigmentary syphiloderm there was a previous hyperæmia or not. In regard to the permanence of vitiligo, he said he had lately met with a case which made him think that it might be really less persistent than he had supposed. In particular spots the pigment returned; but still it was progressive, for other portions of the surface became leucodermatous.

Dr. Duhring explained that the patient whose case he had described was a blonde, and that in her the affection could not be confounded with any variety of cloasma or vitiligo which he had ever seen before. It was certainly a very peculiar manifestation, and it corresponded most accurately with Fournier's description.

Dr. Atkinson remarked that Fournier was of the opinion that it occurred principally in blondes; upon which Dr. Taylor suggested that a French blonde had a very different complexion from what we are accustomed to designate under that term.

Dr. White, after alluding to various causes of pigmentation in syphilis, stated that he had never seen any independent case of pigmentary syphiloderm. This, of course, was merely negative evidence; but the burden of proof certainly lay on those who claim this affection as a distinct syphiloderm. It was necessary for them to prove conclusively that it is to be found only in syphilitic cases, and that it does not follow hyperæmia, or occur as the result of cachexia.

Owing to the absence of Dr. Bulkley, his paper, on a new method of permanently removing superfluous hair, was not read.

Dr. Duhring then read the report of "A case of the so-called xeroderma of Hebra," which was characterized by very extensive lesions, of a threefold character: these being pigmentation, telangiectasis, and atrophy. From it he was led to believe that the affection was not necessarily followed by such marked atrophy as Hebra, Kaposi and Taylor had claimed. This was the first case that had been met with in Philadelphia, so far as was known, and the patient was seventeen years of age. He considered xeroderma a very inappropriate name for the disease, because it gives no idea of its prominent characteristics; and, besides, this term had been employed for years to denote a mild form of ichthyosis. The pathological process observed in the affection was very complex, involving hypertrophy and new growth, as well as atrophy. (A photograph of the case was exhibited.)

On motion of Dr. PIFFARD, the discussion of Dr. Duhring's case was postponed until after the reading of Dr. Taylor's paper on the same subject, and then Dr. Fox presented a paper on "The proper use of the term Acne."

In a general sense, he said, the term Acne was well understood, but it was now employed in such a careless way that it was difficult to say precisely what it ought to include. The variable use of the term was a natural outgrowth of the varying systems of classification, according as it was viewed from an anatomical, pathological, lesional, or clinical, point of view. In his opinion it was most convenient, as well as appropriate, to restrict it to an inflammatory condition of the sebaceous glands. He believed that the immediate cause of the inflamed acne papule was a disordered vascular supply, akin to the vaso-motor paralysis which produces the wheal of urticaria, and maintained that in all cases acne is a disease of internal origin; although he would not deny that an over-distended duct or gland might determine the seat of congestion.

He thought that the name of any disease, or any variety of disease, should convey to the mind a tolerably clear idea of the patient's condition; and this was not accomplished by employing the terms acne oleosa, acne punctata, acne miliaris, etc. How much better it would be, said he, to use the terms seborrhœa oleosa, comedo, milum and acne; each of which conveys to the mind a distinct idea.

The terms acne vulgaris and acne indurata he considered convenient and expressive, and he thought it would subserve the interests of dermatology if the varieties of acne were limited to these two.

Pustular syphilide or syphiloderm, he was glad to say, was now fast superseding the old term acne syphilitica (which names the lesion rather than the disease), and he hoped that in the same manner pustular iodism and bromism would soon take the place of iodic and bromic acne. The general term acne artificialis, he contended, was a misnomer, for true acne, as he had already claimed, was a disease of internal origin, and could not be artificially produced. After alluding to the so-called acne sometimes produced by summer heat, Dr. Fox concluded with some remarks on the affection called acne rosacea, and argued that the word acne should be discarded in connection with it, and that it should be called simply rosacea; because it was not acne at all, and indicated a condition totally unlike that seen in acne.

Dr. WIGGLESWORTH said that he also objected to the term acne-rosacea (where there was nothing but dilated capillaries present), but he could not agree with Dr. Fox in holding that acne was to be distinguished from comedo. He believed that we had an acne (that is the same pathological condition) from plugging of the follicles or from the effect of bromine or iodine, as well as from indigestion, and that the word acne should be used in all these conditions.

Dr. VAN HARLINGEN thought it very desirable that we should be able to arrive at a satisfactory nomenclature for diseases of artificial origin. In regard to comedo, it was often present without acne, and *vice versa.*

Dr. SHERWELL said he was accustomed to making only the distinction acne and acne rosacea. He scarcely ever saw a case which could be described under any single distinctive term (there being usually more than one variety of the affection in the same patient); and he did not see any use in multiplying terms. He thought a distinction should be made, however, in regard to artificial acne.

Dr. PIFFARD said that, as to the etiology of acne, he could not go so far as Dr. Fox, but he did believe that the great majority of the cases were of internal origin. As to acne rosacea, the sebaceous glands were not involved at all in that affection, or, if they were, were only simply atrophied. When the glands were inflamed, we had acne *with* rosacea.

Dr. TAYLOR agreed with Dr. Piffard in his remarks on acne rosacea.

Dr. WHITE stated that many authorities claimed that acne frequently occurred in individuals who were in perfect health, to which Dr. Fox replied that he did not believe that they were in perfect health. If a thorough investigation were made in any such case, he thought it probable that some disorder of digestion would be found.

In the absence of Dr. F. P. Foster, of New York, the secretary, Dr. TAYLOR, read a paper which he had prepared on "A Case of Scleroderma." He regarded it as specially worthy of record from its having been considered by several surgeons to be cancer, and from the fact that death took place without the recognized intercurrence of any other disease. The patient was sent to him by Dr. H. R. Hopkins, of Buffalo, and was an unmarried female of thirty-six, who had previously enjoyed good health, and in whose family there was no history of cancer. The affection commenced in a slight abrasion of the left nipple, which was followed by a small hard mass imbedded in the mammary gland. Later, the whole breast became more firm and less movable than normal, and infiltrations took place into the cellular tissue adjacent, which points, at first doughy, became more firm, with a tendency to involve the overlying skin. When first seen by Dr. Foster, the disease affected the whole of the skin of both breasts, that over the sternum and the whole left half of the chest in front (besides creeping around to the scapula behind), as well as the greater portion of the left arm and forearm. The proper substance of the left breast was very much shrunken, and the nipple was surrounded with a groove of ulceration. The most decidedly indurated portions of the skin were of a board-like hardness, and thinned, while the other indurated parts were somewhat swollen. The former were sharply defined; the latter, less definite in outline. Her general health was good, and all her functions were regularly performed. Dr. Foster prescribed tartrate of iron and potassium, and applied a mild galvanic current to the affected parts. A medical friend had suggested to her the use of *hydrocotyle Asiatica*, to which he made no objection. In a few days Dr. E. L.

Keyes saw her in consultation, and concurred in the diagnosis of scleroderma. After a month she began to complain of a sense of constriction, and all the affected parts became more sensitive than before to the galvanic current. In a few weeks more she returned to Buffalo, and Dr. Hopkins continued the electrical treatment there. In a month after her return he noted an increase in the induration about both axillæ and also of the sense of constriction, combined with which there was now a decided shortness of breath. From that time there was a gradual progression of the disease, both in extent and degree, the induration spreading over almost the entire trunk, as well as both arms. All the left breast became covered with highly-vascular granular tissue, and the patient suffered from almost constant pain in it, of a burning character. Later, she suffered terribly from dyspnœa and an excruciating pain in the umbilical region, so that morphia had to be exhibited in large doses. So extreme was the suffering that it at length became necessary to give her no less than six grains of morphia every four hours, hypodermically, or thirty-six grains in the twenty-four hours. In fact, respiration seemed to be only possible at all when the system was under the influence of the narcotic. Afterward, however, the dose was reduced to twenty grains a day. Before death the induration of the skin extended in all directions, covering the abdomen, back, and, partially, the thighs, and extending upward to the hair behind and the jaw in front. It also seemed to get browner and firmer, until it was almost like sole-leather. No autopsy was made.

Dr. Heitzmann remarked that, from the history, there could be no doubt that the case was one of lenticular cancer, and not scleroderma at all.

Dr. Van Harlingen said that, in all the cases of scleroderma which he had seen or heard of, there had been no ulcerations, and the functions were not interfered with except from the tightness of the skin.

Dr. Piffard made some remarks in regard to the *hydrocotyle Asiatica*, which he said had been introduced by Boileau, and which had been used with more or less success in the treatment of leprosy, lupus, chronic eczema, and psoriasis. In one case of lupus he had employed it with marked beneficial effects, but was obliged to discontinue it on account of its producing epididymitis. There was another plant indigenous to this country, the *hydrocotyle Americana*, which was similar in its botanical characteristics, and he thought that it might also have the same medicinal properties. At all events, he intended to make a trial of it as soon as he got an opportunity.

Dr. TAYLOR said there were certain essential points in the history of the case which were wanting, and he thought it hardly fair to come to a positive decision in regard to it in Dr. Foster's absence. Perhaps Dr. Heitzmann thought it was cancer because there were ulcerations, but he did not believe that the ulcerations would invalidate the diagnosis, because he had seen a case of scleroderma in which there was such extensive ulceration as to render amputation necessary.

Dr. WHITE remarked that, at all events, it was certainly very unlike the ordinary cases of this affection.

First Day—Afternoon Session.—Dr. HEITZMANN read a paper on "Epithelium and its Performances," of which the following is an abstract:

If we watch a single living protoplasmic body (for instance, an amœba, a colorless blood-corpuscle, or a pus-corpuscle) with high magnifying powers of the microscope (800–1,200), we invariably will see a delicate network both within the nucleus and the protoplasm. The body is surrounded by an extremely thin, shining, homogeneous layer, and such a layer always lines vacuoles also, which temporarily or permanently may form in a creeping protoplasmic body. The network of the nucleus, its surrounding shell, the network of the protoplasm, and the covering and the lining shells, both of the body and its vacuoles, are formed by the living matter, the active contraction and passive extension of which cause all changes of shape and locomotion during the life of the protoplasm.

All formations in a highly-developed animal body (being analogous to the outer or covering layer of a single protoplasmic corpuscle, and therefore covering the outer surface and lining all cavities within the body, which are in direct or indirect connection with the outer surface) are termed *epithelia.* Formations, on the contrary, analogous to the wall of a closed vacuole of a single protoplasmic body bear the name of *endothelia*. Epithelia are present on the outer surface of the body, the skin, and its elongations, the hairs, nails, sebaceous, sudoriparous and mammary glands; on the cavity, termed the intestinal tract and its elongations (mucous and salivary, pepsin and intestinal glands), and the liver; on the cavity of the respiratory tract and its mucous glands; and on the cavity of the genito-urinary tract, including all its elongations into the kidneys and the genital glands. Endothelia line the closed cavities of the skull and the spine, all its covering membranes, and all ventricles in the brain and their elongation into the spinal cord; the cavities of the chest, both pleural and pericardial; the cavity of the peritonæum; all articulations, and all blood and lymph vessels, including the cavities of the heart. A thorough distinction between epithelia and endothelia, however, cannot be maintained, as there is a direct communication between both on the openings of the uterine tubes into the peritoneal cavity; the epithelial formations of the ovaries are in no communication with the outer world, and the crystalline lens, a formation completely epithelial in nature, is covered by the endothelium of the anterior and posterior chambers. Epithelia and endothelia are fully identical in their intimate structure. There exist single epithelial layers in the body, for instance, those of the bile-ducts and the uriniferous tubules; and also ciliated endothelia, for instance, in the ventricles of the brain and the central canal of the spinal cord.

Epithelia and endothelia represent continuous layers of living matter. The former are the earliest formations in a developing body, after the stage of indifference (started by the segmentation of the ovum) is passed; they form the epiblast and the hypoblast. These are invariably devoid of blood-vessels and lymphatics, while all formations of the mesoblast, including its upper layer, from which arise the central nervous organs, are provided with blood-vessels and lymphatics. The epithelial and endothelial layers are built up by single, polyhedral, protoplasmic bodies, the formerly so-called "epithelial cells." Each body is separated from its neighbors by a narrow cloak of a lifeless, horny, cement substance, this being kindred to the basis substance in the connective tissue. Under the microscope we can see only the lateral parts of the cloak, which appear in the shape of a pale seam around each epithelium. The network of the living matter within the protoplasm of the epithelium sends delicate conical offshoots through all formations of the cement-substance, both in epithelia and endothelia. These offshoots, up to the present time, have been termed "thorns of Max Schultze," in honor of their discoverer (1864). That the thorns are universal formations in the cement-substance, and especially formations of the living matter (thus building the bridge by which all epithelia are uninterruptedly connected), can be proved by different chemical reagents, and by the study of pathological occurrences within the cement-substance, viz., inflammation, fatty degeneration, etc. In the cement-substance run the finest terminating fibres of the nerves, also in connection with the thorns, and indirectly with the network in the interior of the protoplasm.

We distinguish mainly three varieties of epithelia: the flat, the cuboidal, and the columnar or cylindrical. Flat epithelia invariably construct the outer layers in stratified formations, cuboidal the middle layers, and columnar the lowest layer, nearest to the connective tissue. Single epithelial layers may exhibit any of the above-named shapes: in the uriniferous tubules, for instance, we find all the three varieties, according to the calibres of the tubules. Columnar epithelia have two sub-varieties, viz., ciliated epithelium, with whip-like elongations on the outer surface (therefore occurring only in single layers, the cilia being in connection with the network in the interior of the protoplasm—Th. Eimer and E. Klein), and the bacillated epithelium, where the outer surface of the cement-substance is provided with numerous delicate rods, such as are found in the intestinal canal and the bile-ducts.

All organs of the body termed glands are formations of the epithelium. We distinguish two varieties of glands, viz., the acinous and the tubular. A roundish elongation of the epithelium into the connective tissue forms a simple acinous gland, represented by the mucous glands of the oral cavity, the larynx, and the trachea. Repeated folding up of the pouch leads to formation of compound acinous or racemous glands, represented by the sebaceous, the salivary, the lacteal, the prostatic, and other mucous glands. An elongation of the epithelium, prevailing in the longitudinal direction, is termed a simple tubular gland, represented by the pepsin and the intestinal glands. Repeated ramifications of the tubules result in the formation of compound tubular glands, represented by the seminiferous and uriniferous tubules. Another sub-variety of compound tubular glands may originate by coiling of the tubule, as we see on the sweat and ceruminal glands.

The main performance of epithelium, besides the protection of the whole body, conduction of terminal nerve-fibres and, therefore, of sensation, etc., is the elimination of used-up material from the body, viz., secretion. Every glandular formation is epithelial, and every epithelial body can be considered as a gland, inasmuch as the secretion is based upon a function of single epithelium.

There are mainly three varieties of secretion, viz., the watery, the mucous, and the fatty. The watery secretion cannot directly be studied under the microscope; we only conclude, by watching amœbæ stained with carmine particles, that, at any time when, through the visible contraction of the living matter within the protoplasm, carmine particles are thrown out from the amœba, a certain amount of its fluid is discharged also. A liquid, being present at one time in the blood, necessarily must pass through the walls of the blood-vessels and enter first the protoplasm of the epithelia before it can be expelled from these, evidently owing to the contraction of the living network of the protoplasm. The watery secretion is performed by the lachrymal and the sweat-glands; and the latter produce a fluid greatly varying in the amount of its solid contents and its consistence at different times. Near the approach of death the perspiration is inspissated and almost mucous in character, and the inspissation of the fluid pressed out from the blood-vessels of the tufts of the kidney is evidently the main performance of the uriniferous tubules.

The mucous secretion can be directly observed under the microscope: best on minute particles, cut off from the inner surface of the small intestine of a frog, by the addition of a very dilute solution of chromic acid or bichromate of potash, pure water being too rapid in its action. First we see swelling of the protoplasm near the outer or free surface of the epithelium. Here the covering cement-substance is bulging out; and, after having reached its utmost capacity of expansion, it bursts, and a pale, globular body springs forward —the swelled protoplasm, in which no trace of the former structure can be seen. A number of such pale globules coalesce, and form the jelly-like mass called mucus. At other times the whole protoplasm swells within the cloak of the cement-substance, and, after being freed, still shows the net-like structure of the protoplasm or isolated granules in lively motion, the broken particles of the former living matter. Salivary and mucous corpuscles arise from such slow action upon the protoplasm. The cloak of the cement-substance, partly or totally emptied and perforated at one end, gives the appearance of a "goblet cell." A variety of the mucous secretion is that of the stomachic juice, of the bile, and of the semen; in the latter fluid there being suspended formations of living matter, the spermatozoids, a direct offspring of the epithelia of the testicles. Saliva represents an intermediate condition between watery and mucous secretion.

The third variety of secretion can best be studied under the microscope on colostrum corpuscles, which are suspended in the serous discharge of the mammary glands for a few days after delivery. Here we see the first-formed fat-granules still in connection with the network of the living matter within the protoplasm, and we readily arrive at the conclusion that fat is a directly transformed living matter. During the locomotion of a colostrum corpuscle, very often fat-granules are thrown up from its interior (S. Stricker). After a few days, however, no more colostrum corpuscles are secreted, because the living matter of the epithelia is completely transformed into fat-granules, leading to a destruction of the epithelia, the granules of which commingle with a serous fluid, and form the emulsion called milk. This process of fatty change of the living matter of the epithelia of the mammary glands is a remarkably rapid one. In microscopic specimens of the breast in full lactation, we find but little protoplasm unchanged, the greater part of it being transformed into fat-granules, which, having been extracted from the specimen with oil of cloves, leave only the shells of the cement-substance behind. The highest degree of fatty change of the protoplasm is reached in the sebaceous and the ceruminal glands.

Dr. Heitzmann's paper was discussed by Drs. ATKINSON, PIFFARD, and Fox. The latter said it was histological, rather than dermatological, in character, and that he did not believe it possible to base the science of dermatology to any great extent on microscopical investigation. Clinical study, he thought, was more essential; and, for himself personally, it was of more advantage to pay less attention to the microscope, and devote more time to practical work. It was desirable, however, for some men who were peculiarly fitted for such studies to give themselves up to this kind of investigation, and he certainly thought that they were deserving of all praise for doing so.

Dr. PIFFARD also said that to consider microscopic study the only safe basis for dermatology was altogether too narrow a view, and that it should not be forgotten that we were physicians, as well as dermatologists. It was of more importance to study therapeutics, since our great aim was to cure disease. In our present state of knowledge, diagnosis by means of the microscope was undoubtedly a very uncertain matter, but at the same time, with Dr. Fox, he felt grateful to Dr. Heitzmann and men like him for their self-sacrificing efforts in the cause of science.

In closing the discussion, Dr. HEITZMANN remarked that the microscope did not lie, but its revelations might be misinterpreted. There were many things in connection with our science which were now puzzles, but which would be cleared up in the course of a few years, if the great field open to us were thoroughly investigated; and he could not but believe that scientific dermatology must finally depend on microscopical anatomy.

The afternoon's session was brought to a close by the reading of the report of the Committee on Statistics by the president, Dr. White.

Second Day. Morning Session.—At the business meeting at 9.30 A. M., the following officers were elected for the ensuing year:

President, L. A. Duhring, of Philadelphia; Vice-presidents, J. N. Hyde, of Chicago, S. Sherwell, of Brooklyn; Secretary, R. W. Taylor, of New York; Treasurer, I. E. Atkinson, of Baltimore.

It was also then decided that the next meeting of the association should be held in New York on the last Tuesday, Wednesday, and Thursday of August, 1879.

The first paper of the day was read by Dr. DUHRING on a "Case of Inflammatory Fungoid Neoplasm."

The first affection of the skin from which the patient (a married lady of fifty-eight) ever suffered was an acute attack of what seemed to have been vesicular eczema in August, 1876. This was followed by repeated attacks of urticaria, showing excessive irritability of the skin; and in October of the same year the first manifestation of the present disease made its appearance. This was a red spot on the right side of the forehead, of the size of a dime, not inflammatory, and looking like a superficial burn.

It gradually increased in size, and in August, 1877, began to rise slowly above the level of the skin, when it assumed a purplish hue, and presented the appearance of a boil. There were no subjective symptoms. Later, a number of tumors, of various character and sizes, appeared on the forehead, scalp, and face, and also upon the trunk and extremities, most of them coming very suddenly, and some of them disappearing almost as rapidly. When Dr. Duhring first saw the patient in October, 1877, there were five distinct lesions, consisting of tumors of different kinds, tubercular elevations and flat patches, some of which resembled tinea versicolor. Later, some of them gave rise to considerable pain, and also to intense itching.

Under the microscope (300), specimens of integument from them presented the following characters: The whole of the corium was infiltrated with a new growth, the cells being more abundant in its deeper portions. The walls of the hair-follicles are also packed with neoplasm. The cells were homogeneous in character, not being nucleated as a rule.

Some of them, however, had nuclei, but none more than one nucleus. There were no spindle-cells, as far as could be seen; nor was there any connective tissue or elastic-fibre bundles, as in normal skin.

New developments continued to manifest themselves from time to time, and on July 2d, 1878, Dr. Duhring strangulated a large tumor on the left cheek with a ligature. On July 4th ablation was performed, and this was followed by severe hœmorrhage; but the operation finally resulted in the most successful manner. This tumor was presented to the association, and, although it had been kept in alcohol, it was still of the size of a very large horse-chestnut. It weighed one ounce when first removed. Before this time the internal administration of iodide of sodium, and, later, of arsenic, had been tried; but, instead of being of any service, they both seemed to greatly aggravate the disease.

Dr. Duhring regarded the affection not only as new, but of such a grave character as to make it deserving of the closest study. Its course seemed entirely at variance with the ordinary manifestations of disease, and the fact that the general health remained unimpaired seemed to indicate that it was confined exclusively to the integument. There were two principal lesions—the flat patches and the round, tumor-like growths. The former were of various sizes, slightly elevated, dry, scaly, chapped-looking, and furrowed, and were followed by dirty, yellow pigmentation. The tumors varied in size from that of a split-pea to that of an egg, some being soft and others firm to the touch. They were either smooth and tense, or else had an excoriated surface, from which oozed serous and bloody fluid, and they were distinctly furrowed or lobulated. The subjective symptoms were principally itching, with occasional pain and a burning sensation. One of the most remarkable features of the disease was the exceedingly rapid development, and sometimes equally rapid disappearance, of the lesions noted. When the tumors underwent involution, pigmentation was usually left, but no permanent scars. Hebra first met with a case of this affection in 1872. He described it as new, and simply called it *neoplasma*. He met with a second case in 1874, and these Dr. Duhring believed were the only two cases on record. During the course of the reading of the paper Dr. Duhring presented microscopical specimens from his case, as well as photographs and paintings representing its gross appearances; and at its conclusion exhibited the patient herself, whom he had induced to come on from Philadelphia.

Dr. PIFFARD stated that he had seen two cases which bore some resemblance to Dr. Duhring's. The first was one which Dr. Sherwell had presented to the New York Dermatological Society, and in which the same kind of tumors were seen upon the forehead. The second was one of his own, in which the growths made their appearance differently, but seemed to be of the same nature. The initial lesion resembled psoriasis, except that it was of a livid purple color. There were tumors on the thigh and calf also. After a time a change manifested itself in the interior of the tumors, the tops becoming flattened and the central portions sloughing out. Absorption of the periphery took place, and there was left a cicatrix, with pigmentation. In this respect the tumors differed from those in Dr. Duhring's case. The patient was brought before the New York Dermatological Society in order that a diagnosis might be made; but no one ventured to give the affection a name.

Dr. TAYLOR said that, if he remembered rightly, the tumors in Dr. Piffard's case presented the appearance of a truncated cone, and that the ulcerated surface looked fungated, with overhanging edges. The tumors had a stony hardness. The disease was not at all similar to that just described by Dr. Duhring. He remembered Sherwell's case, and considered it identical in appearance to the patient now exhibited. It differed, however, he thought, in the fact of slow development of the tumors.

Dr. FOX remarked that he did not think Dr. Sherwell's case so much like Dr. Duhring's as Dr. Piffard's. He hoped that the latter would be investigated still further, as the patient was still residing in New York. It seemed to him that the disease was essentially the same in the two cases, and he had particularly noticed that one tumor on the neck in Dr. Duhring's case had a marked central depression, which was a prominent characteristic of most of the tumors in Dr. Piffard's. The fungating masses were also present. He remembered seeing in the St. Louis, at Paris, a case in which there was a single tumor (of similar character) springing from the thigh, and he thought it must probably have been a mild form of the affection. On the whole, he was inclined to believe that the cases of Drs. Duhring and Piffard were strongly marked instances of a disease which (in its less severe type) might not be so rare as at present supposed.

Dr. SHERWELL said that the case which had been spoken of in connection with his name had occurred four years ago, and that at that time he was inclined to think it one of tubercular leprosy. The chief growth occupied the superciliary region, and pressed down upon the lid to such an extent that the eye could not be opened. The patient, who was an old man, passed from under observation before any careful study of his case could be made, and shortly afterward died. The cause of death was unknown to him, and he had not been able to get an autopsy. As far as he could judge, he thought Dr. Duhring's case must be very much like the peculiar disease known in the West Indies as *yaws*.

Dr. WIGGLESWORTH inquired if there had been any microscopical examination made in Dr. Piffard's case, and Dr. Piffard replied that there had not.

Dr. DUHRING remarked that the inflammatory nature of his case seemed to be shown by the fact that the disease was greatly aggravated by iodide of sodium and by arsenic. He found that in skipping certain portions of his paper, on account of its length, he had omitted one very important part of the treatment, and this was that since the first of June the patient had been taking the tincture of ergot almost constantly. Its use, he believed, had been attended with very decided improvement in the disease. In regard to the removal of the tumor on the cheek, he said that he at first felt very much in doubt as to what would be the result of the operation, and that it had proved much more successful than he had dared to anticipate. During his absence from the city this summer Dr. Van Harlingen had also removed one of the large tumors on the thigh, and with equally good results.

Dr. PIFFARD said that it seemed strange that both Dr. Duhring and he should have employed very similar treatment in their cases. From the amount of venous stasis present in his own, he had been led to make trial of the tincture of hamamelis, this plant containing a larger proportion of tannin than almost any other, besides other valuable properties.

Dr. WHITE inquired if the quack preparations like "Pond's Extract" were not called tinctures of hamamelis?

Dr. PIFFARD replied that Pond's and Bristol's extracts are not properly extracts at all, but simply *aquæ destillatæ*, with enough alcohol in them to preserve the preparation. Jolie's red extract, however, was a genuine extract, although it contained only the stable portions of the hamamelis. The tincture used in the case referred to contained both the stable and volatile properties of the drug. The volatile part was probably in the form of an oil, which could be obtained by means of chloroform. The active properties of hamamelis were the subject of considerable discussion in certain quarters at the present time, and a crystalline principle had recently been extracted from it.

The Secretary (in the absence of the writer) then read a paper by Dr. W. A. HARDAWAY, of St. Louis, on "The Treatment of Hirsuties."

Dr. Michel, an ophthalmologist of St. Louis, had for some time successfully employed electrolysis for the removal of "wild hairs" from the eyelids, and this had induced Dr. Hardaway to make use of the same method in dermatological practice. The method employed was as follows: The patient should be seated in a reclining chair and facing a good light. The needle-holder is then attached to the negative pole of the battery, and an ordinary electrode, covered with a moistened sponge, is connected with the positive pole. Under a lens of about two inch focus, the needle is inserted the requisite depth into the follicle; the circuit is then completed by the patient pressing the sponge-electrode (anode) against the palm of the hand. The electrolytic action is allowed to go on until the peculiar white frothing is seen to well up around the insertion of the needle, when the current is at once interrupted by the patient releasing the positive electrode; after which the needle is withdrawn. Occasionally the hair comes away adhering to the needle; but generally it is necessary to remove it with a pair of epilation forceps. No force, however, should be used in extraction; for, if the hair does not come away readily, it is an evidence that the operation has failed, and it should then be repeated. Dr. Hardaway went on to say that the smaller the battery the longer would be the time consumed; but, if a large battery were employed, the pain would be proportionally increased. With a good battery of eight elements, the desired result could be accomplished in from two to five seconds, and with a trifling amount of pain. Dr. A. E. Prince, of Jacksonville, Illinois, had used this method with very great success, and had invented a very ingenious and useful needle-holder for the operation. He preferred to use from five to ten cells of the Hill battery, which was a compromise between pain and speed. Dr. Hardaway referred to the works of Neumann and Piffard, in one of which the galvano-cautery, and in the other electrolysis, is recommended in hairy nævi; and then stated that Michel was the first to urge and systematize this method for the removal of superfluous hairs, and had taught the operation in his ophthalmic clinic for at least four years before its publication. Where electrolysis was not practicable, Dr. Hardaway recommended the use of a solution of chloride of zinc (of the strength of two drachms to three drachms of water) applied by means of a hollow needle.

Dr. Piffard, in commencing his remarks on the paper, said that he thought he had employed electrolysis for the purpose mentioned as early as Dr. Michel; but the latter certainly had the priority in publication. He did not see how these gentlemen were able to get the needle into the follicle while the hair was still there, on account of its minuteness. At first, he said, he had employed his own method only in the case of hairy nævi, but now he was in the habit of applying it whenever superfluous hairs were to be removed, provided they were not too small. He thought a steel needle might rust, and so had made use of a platinum one, adding a sufficient quantity of iridium to it to give it the necessary stiffness. He was very much pleased with Dr. Prince's ingenious needle-holder, and had no doubt it would greatly facilitate the use of electrolysis. He did not think it was practicable to get into the very small follicles, and, indeed, it was only necessary to get sufficiently near the follicle, in order to accomplish the work of destruction. This, he thought, would account in great measure for the success which Dr. Hardaway met with. He denied that Neumann ever got into the follicle at all in his galvano-cautery operation; for it would certainly be most extraordinary if two wires could be introduced, without touching each other (as was essential to the process), into so small a cavity as that of a hair-follicle. In Neumann's operation there must necessarily be a great deal of burning of tissue, and this would leave an unsightly scar. When electrolysis was employed, however, very little, if any, scar remained. He considered Hill's battery probably the best for the purpose; for, although the current obtained from it was moderate, it was of great steadiness, and no sparks were produced by it, a matter of some importance in working about the head. He was not accustomed to wait for bubbles of hydrogen, but discontinued the current as soon as the white line appeared around the follicle. On the whole, he thought the operation a very successful one after a little practice with it.

Dr. Fox thought the statement in the paper, that the pain was slight, was liable to mislead. Certainly, when a large number of hairs were to be removed, the operation was anything but a painless one, even with the use of all possible precautions. In some instances the follicles were destroyed, and in others not; and, if the latter was the case, the hairs would return. He thought, therefore, that it was desirable to use as small a needle as could be inserted to the bottom of the follicle. The irido-platinum needle of Piffard was preferable to a cambric needle (employed by Dr. Prince), as it could be drawn out more finely. Personally, however, he was in the habit of using platinum-wire only, as it did not double up, as had been apprehended by Dr. Piffard, and passed into a follicle very much as a bougie passes into the bladder. He used only from four to six cells, on account of the less pain occasioned by a weak current, and followed Piffard in extracting the hair before applying electrolysis. A bright light was necessary in order that the patulous orifices of the follicles might be seen, and this was often very trying to the eyes of the operator, especially if the *séance* was a long one.

Dr. TAYLOR said that he had been using electrolysis for three or four years now, and he employed a very delicate irido-platinum needle for the purpose. He considered the matter of pain quite an important element; and, in consequence of this, several *séances* were ordinarily necessary. He had had good results from this method in the treatment of comedones.

Dr. WHITE inquired if the effect was permanent, and in reply—

Dr. FOX said that no case of cure should be reported until after a considerable time had elapsed. In one case he had removed as many as five hundred hairs, and, although the result was not perfectly successful, it was fairly encouraging. Sometimes hairs would return three months after removal.

Dr. WHITE then inquired if any gentleman present had succeeded in permanently removing fifty per cent. of hairs?

Dr. PIFFARD replied that in his experience, if the hairs were moderately large, about seventy-five per cent. would never return. The radical cure depended on the destruction of the papilla, and sometimes imperfect hairs would afterward make their appearance if the destruction were incomplete. It was impossible to get any satisfactory results whatever if the hairs were very minute.

Dr. TAYLOR stated that in his earlier cases he failed in permanently removing about half the hairs, but now he could generally destroy almost all of them.

Dr. WHITE said that he had tried the chloride of zinc in two cases, and his success with it had not been such as to warrant him in resorting to it again. He found that it caused great irritation of the skin.

Dr. HEITZMANN thought that it was better to postpone any definite opinion on the subject of epilation for the present. He used to think that he got excellent results; but, after a longer or shorter period, the hairs almost always returned. He had used a nickel-plated pin dipped in strong nitric acid, sometimes pulling out the hair first and sometimes leaving it *in situ*. From his past experience he confessed that his faith in electrolysis was not at all sanguine; but he at all events thought it worthy of trial.

Dr. Taylor replied that he did not think Dr. Heitzmann's method comparable to electrolysis. He doubted very much whether any of the nitric acid at all got to the bottom of the follicle, while in electrolysis the destructive agent was applied just where it was desired.

Dr. Duhring remarked that he had recently been experimenting in about half a dozen cases with a three-sided needle, and with fairly successful results. He introduced the needle directly into the follicle, and then gave it three or four turns, until a small drop of blood made its appearance. In order to succeed with this method it was necessary that the hair should be of pretty good size, and that both the papilla and the walls of the follicle should be destroyed. It had been suggested to him by Dr. Bulkley.

In answer to a question by Dr. Fox, Dr. Duhring stated that the operation was unaccompanied by pain.

[The further proceedings will appear in the next number of the Journal.]

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, September 11, 1878.

Dr. E. S. Seguin, Vice-President, in the Chair.

Tape-Worm.—Dr. F. V. White presented a specimen of tape-worm which had been passed by a patient after the administration of pumpkin-seed and male-fern. Dr. White said, in presenting the specimen, he wished to call in question a remark occurring in Ziemssen, in the article on *Tænia* (vol. vii., page 706), in which it is stated that "a person suffering from tænia solium is more to be shunned than one suffering from smallpox or the itch." He thought that it was too sweeping in its character, and not borne out by general experience.

Dr. Post said in respect to the treatment of tape-worm he had lately used a combination of pumpkin-seed, male-fern, ergot and Croton oil, which had been recommended. It was given to a woman twenty-five years of age, in the fourth and a half month of pregnancy. The remedy caused active purging and removed the worm. The ergot had no effect on the pregnant uterus.

Dr. Robinson had given to a pregnant woman the remedy referred to by Dr. Post, and found it to remove the worm but to cause abortion.

Dr. Seguin stated that pumpkin-seed was a favorite remedy in the old New York Hospital. Patients objected to it, however, from the amount required.

Bibliographical and Literary Notes.

Art. I.—*A Manual of Operative Surgery.* By Lewis A. Stimson, B. A. (Yale), M. D., Surgeon to the Presbyterian Hospital, Professor of Pathological Anatomy in the Medical Faculty of the University of the City of New York. Philadelphia: Henry C. Lea. 1878.

This is an octavo volume of 470 pages, of handy size, containing three hundred and thirty-two illustrations, and intended "to meet the wants of the practitioner and student." It is made up of descriptions of operations in all branches of surgery, compiled from various authorities. Very little information as to the relative advantages of different methods or modifications is afforded. The author in no instance expresses any personal opinion as to the value of a given procedure, nor records any personal observations, but contents himself with saying that this or that method "is generally preferred," or "is practised by Mr. ——," or such a surgeon operates in this way, leaving the reader in doubt as to the selection of even one reliable procedure. Even in a manual we consider this a great defect, and it implies either bad judgment on the part of the author or lack of experience. The book would have been far more serviceable had it contained fewer operations; and some chapters, such as those on operations on the eye, ear, and the female genital organs, could have been omitted to advantage. The practitioner and student are not called upon to perform these operations, and the general or special surgeon, who wishes to study them, will prefer to go to the same authorities that the author has consulted. Still the work may be found useful to a large class of readers who are not within the reach of libraries, and are not contented with the information given in standard works on surgery. It has been written with much literary skill, but apparently in great haste, as many essential matters are omitted altogether, and some important subjects have been too superficially treated.

The latter statement is particularly applicable to the first fifty pages, which deal with "Anæsthesia," "Arrest of Hæmorrhage," "Treatment of Surgical Wounds," "Sutures," and "Bandages." So little information is afforded about these important matters, and the illustrations are so bad, that we think it would have been far better to omit them entirely. There are no directions for the use of nitrous oxide gas, no mention of the improved inhalers for ether—Allis's for instance—nor of the use of the nitrite of amyl in chloroform-syncope. The absurd statement that, "on account of its inflammability, ether should not be used at night" should be qualified, and supplemented by the recommendation of the simple rule for avoiding its taking fire, of keeping the source of the light always two or three feet above the level of the inhaler. Local pressure is not spoken of as a means for the arrest of bleeding; and the cuts illustrating the application of Petit's tourniquet represent an unsurgical method. The roller-bandage should be placed for obvious reasons in the loop of the band which passes under the clamp. The reader could have been taught several very useful ways of applying Esmarch's apparatus in regions such as the hip and shoulder, by one or two illustrations from that surgeon's "Handbuch der kriegschirurgischen Technik." The treatment of surgical wounds is described in less than four pages, which consist of a concise statement of the method of Lister, Guérin, and the open treatment. The general practitioner has a right to ask for more information than this, and could have been made much wiser by suitable mention of rest and position, cold, cleanliness, disinfection of discharges, irrigation, etc. Immovable bandages in general are treated of in the space of one page, while Sayre's "plaster-jacket" is given three and a half pages.

The rules for the ligation of arteries are clearly and concisely expressed. The author follows in the track of other writers, and inserts cuts of incisions drawn on limbs in outline, which are of little value, unless the bony landmarks are indicated at the same time. This has been done in some of the cuts, and in all of those appertaining to the chapters on amputations.

In "amputations" we must take exception to the statement that the only method applicable to the lower third of the forearm is the circular. The bilateral skin-flaps with circular division of the muscle can be done satisfactorily. We miss several excellent methods in this chapter. One is that of Stephen Smith for the knee-joint with bilateral skin-flaps, which has been frequently practised in our hospitals. Another is Le Fort's modification of Pirogoff's amputation at the ankle-joint. And the most striking omission is that of the method for amputation of the leg by the bilateral skin-flaps with circular division of muscles, which is generally done by surgeons of this city at present, though not much practised abroad.

The chapter on excisions is the best in the book. The method of Volkmann for the knee (transverse section of the patella, etc.) is not mentioned.

The sections on "Plastic Surgery" and "Operations in Abdominal Wall" are well written, and the author's selections of operations, as a rule, judicious.

Our space is too limited to allow further criticism, and we must be content with mentioning several operations which are not even hinted at. These are fistula in ano, Salmon's or Allingham's method of ligating hæmorrhoids, internal urethrotomy, aspiration of bladder, extraction of foreign bodies from urethra and bladder, extraction of bullets, thyrotomy, nephrotomy, removal of larynx, operations for vaginismus and for inversion of the uterus, Heaton's method for the radical cure of hernia, and the methods advocated by Nussbaum, O. Risel, and Schede (*Centralblatt für Chirurgie*, 1877, 44) of excising the sac and ligating its neck with catgut (under "Lister").

Art. II.—*Injuries of the Eye and their Medico-Legal Aspect.* By Ferdinand Von Arlt, M. D., Professor of Ophthalmology in the University of Vienna, Austria. Translated, with the permission of the author, by Charles S. Turnbull, M. D., Surgeon to the Eye and Ear Department, Howard Hospital; Chief of the Ear Clinic, Jefferson Medical College Hospital; Physician of the German Hospital, Philadelphia; Late Resident Assistant Surgeon to the New York Ophthalmic and Aural Institute, etc. Philadelphia: Claxton, Remsen & Haffelfinger. Pp. 198.

This little volume comprises a series of papers which were first published by the celebrated author in the *Wiener mediciniscke Wochenschrift*, for 1874. The favorable notice which these publications received by the profession induced him to collect them in a new but unaltered edition in book form. Dr. Turnbull has now placed this valuable monograph in the reach of the English-reading public; and as he says in his preface, it "is intended to fill the same gap in American medical literature which the original has so successfully filled in the German."

The aim of the book is particularly to give a short and succinct account of these injuries with special reference to those facts, a knowledge of which is essential to the medico-legal expert.

The injuries of the eye are divided into three groups, viz.:

I. *Injuries produced by sudden compression or concussion of the eye.*

II. *Injuries produced by the entrance of a foreign body not acting chemically.* This includes the lodgment of the foreign body in the eye, or to either side of or behind it, or it may not remain at all. The coincident injury of lids, lachrymal apparatus, and the bony walls of the orbit are left to the province of general surgery.

III. *Scalds and corrosions of the eyeball.*

IV. *Such affections as are either feigned, or produced artificially and intentionally.*

In each of the groups mentioned, a certain anatomical order is followed, and the discussion of each head is further subdivided into Diagnosis, Prognosis, and Therapeutics. Some preliminary observations are made upon the importance of making a careful functional examination not only of the injured eye but of the uninjured one also, each of course separately. The importance of such precautions is obvious to the specialist, and is well set forth by the author.

It is assumed that the reader is acquainted with the modern means of investigating. And, if the physician, called upon to deliver his opinion as an expert, does not possess these requirements, he is wisely advised to refer the case to some one who does.

Aside from this, we do not find the book too technical for even the general practitioner to read with advantage. It is a book which we take it for granted every specialist in the department will provide himself with, and it will also be a valuable addition to any general surgeon's library.

In some of the reviews of the translation which have already appeared, the translator has, we think, been rather uncharitably criticised. Those who read German know how very difficult and involved the style of many writers is, and we believe it is pretty generally conceded that Vienna German is the worst of all to construe into smooth and readable English.

The translator correctly holds that "The correct interpretation of the author's sense is the chief desideratum in a translation, everything beyond this being of secondary importance." While it may be true, then, that there are occasional awkward expressions, the sense of the author's meaning is fairly and even well rendered.

Art. III.—*Fourth Biennial Report of the Board of Health of California for the Years 1876 and 1877.* 8vo., pp. 92.

The most elaborate and the most valuable article in this volume is that on "Relations of the Climate of California to Consumption," by F. W. Hatch, M. D., permanent secretary of the board. We will copy the author's conclusions entire:

"*First.*—That, for the majority of invalids seeking a change of climate in consumption, the mountains—preferably the Coast Range—offer advantages, during the summer and early fall months, superior to those of any other portion of the State.

"*Second.*—That a certain proportion may find the eastern slope of the Coast Range agreeable and beneficial even during the winter season.

"*Third.*—That a life in the open air—camp-life—with the exercise to which it invites, agreeable companionship, pleasant occupation of mind and body, are indispensable to the attainment of the full benefits to be derived from climate.

"*Fourth.*—That, for a large proportion of consumptives, some point on the southern coast seems eminently suitable as a winter residence.

"*Fifth.*—The premonitory stage of phthisis, or the *first* stage of its actual development, is the only one in which climate may be safely relied upon. That some cases in the *second* stage may be greatly benefited, especially when the nutritive processes are not seriously impaired. That a few may secure an apparently permanent arrest of the disease, and enjoy good health for many years; but that the climate of California, while it may for a time seem to inspire hope, offers, in reality, no very strong inducement to those lapsing or who have already passed into the *third* stage of disease.

"*Sixth.*—That the remedy, if found beneficial, must be continued from year to year, until the restoration of the nutritive processes is complete, and the progress of disease, as determined by the physical signs, appears to be arrested."

Other articles of value are included in the volume.

ART. IV.—*Diseases of the Nasal Cavity and the Vault of the Pharynx.* Translated from the German of Dr. CARL MICHEL, of Cologne on the Rhine, with an Introduction by E. L. SHURLY, M. D., and C. C. YEMANS, M. D. 8vo., pp. 109. Detroit: C. Jung. 1877.

ALTHOUGH the pamphlet before us is not what we should call a systematic treatise upon the class of diseases named in the title, it nevertheless contains many practical suggestions which every practitioner will find it advantageous to become familiar with.

In chronic nasal catarrh the author relies to a very great extent upon the employment of the galvano-cautery to the diseased membranes, and especially upon the inferior turbinated bones. Insufflations of powdered chlorate of potassium and the use of the syringe are also recommended. Ozæna (a condition attended with a purulent discharge with offensive odor) is treated by thoroughly cleansing the nasal cavities with the syringe, in a manner similar to that recommended by Dr. J. Oscroft Tansley, in the August number of the New York Medical Journal, and by the insufflation of chlorate of potassium. The author does not hope to obtain a complete cure, yet the offensiveness of the disease is relieved, and the sense of smell improved.

Art. V.—*Guérison de Six Aveugles-Nés.* Par M. le Dr. Louis Fialla, Chef du service à l'Hôpital Philantropie, Bucarest, 1878, pp. 32.

This little pamphlet is a rather dramatic account of six cases of congenital cataract which were successfully operated upon by the author, within a period of two years. Most of the patients had reached an unusually advanced age before they were submitted to operation.

The author says that he has only been able to find, in literature extending over one hundred and forty-nine years, an account of fourteen cases of operation for congenital cataract. This statement would give an altogether false impression of the frequency of this operation, even if we limit the operations to the instances in which it has been performed upon adults. We venture to say that there is hardly an ophthalmic surgeon who has not performed the operation at least once and perhaps oftener in patients as advanced in years as Dr. Fialla's. The cases were all operated upon by discission, and several of them followed by very severe reaction.

Art. VI.—*Fifth Annual Report of the Board of Health of the City of Boston, for the Year ending April 30, 1877.* 8vo., pp. 96. Boston: Rockwell & Churchill. 1877.

The efforts of the Board of Health of Boston to secure proper sanitary conditions are very praiseworthy, and especially to be commended is the attempt of the board to limit the spread of scarlet-fever. They passed rather stringent orders in regard to the isolation, and to reporting cases, of scarlet-fever, and advised the most thorough disinfection of the premises after the recovery of the patient. Children are not permitted to attend school until four weeks after the last case occurring in a house has recovered. The full results of their plan are not yet apparent.

ART. VII.—*Transactions of the American Neurological Association for 1877.* Edited by E. C. SEGUIN, M. D. Vol. II. 8vo., pp. lxii.–227. New York: G. P. Putnam's Sons. 1877.

THIS is a very interesting volume, including twelve articles read at the last meeting, and ten articles read at the meeting of 1876. Two papers read at the meeting of 1877, and not included in the volume, were published in this JOURNAL, in the numbers for July and September of last year. The discussions of the several papers are recorded in the "Proceedings," and of course add to the interest of the articles themselves. Many of the papers are quite original.

ART. VIII.—*Anatomy, Descriptive and Surgical.* By HENRY GRAY, F. R. C. S. With 522 Engravings on Wood. The Drawings by H. V. Carter, M. D., and Dr. Westmacott. The Dissections jointly by the author and Dr. Carter. With an Introduction on General Anatomy and Development. By T. Holmes, M. A., Cantab., Surgeon to St. George's Hospital, etc. A New American from the Eighth and Enlarged English Edition. To which is added "Landmarks, Medical and Surgical." By Luther Holden, F. R. C. S., Surgeon to St. Bartholomew's Hospital, etc. Philadelphia: Henry C. Lea. 8vo, pp. 983. 1878.

THE changes in the new edition of this standard and indispensable work on Anatomy will be found chiefly in the sections on "Microscopic Anatomy" and on "Development." The American publisher has done wisely in appending Mr. Holden's "Landmarks, Medical and Surgical," which is very appropriately placed, as it enhances materially the value of the volume. Every student should keep both Gray's "Anatomy" and Holden's "Landmarks" within reach.

Books and Pamphlets Received.—Urethral Stricture. By Thomas R. Brown, M. D., Professor Clinical and Operative Surgery and Diseases of the Genito-Urinary Organs, College of Physicians and Surgeons, Baltimore, Maryland. (Reprinted from the *Transactions of the Medical and Chirurgical Faculty of Maryland*, April, 1878.)

Neuralgia and its Modern Therapeusis. By James B. Baird, M. D., Atlanta. (Reprinted from the *Transactions of the Medical Association of Georgia.*)

Report on Public Hygiene and State Medicine. By F. W. Hatch, M. D., Sacramento, California. (Extracted from the *Transactions of the Medical Society of the State of California*, 1878.)

Battey's Operation; Three Fatal Cases, with some Remarks upon the Indications for the Operation. By George J. Engelmann, M. D., of St. Louis, Missouri. (Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children*, Vol. XI., No. III., July, 1878.)

Address delivered before the American Medical Association, at its Twenty-ninth Annual Session, held at Buffalo, New York, June 4th to 7th, 1878. By T. G. Richardson, M. D., of New Orleans, President of the Association. (Extracted from the *Transactions of the American Medical Association.*)

On Giant Urticaria. By J. L. Milton.

Physical Signs of Interpleural Pathological Processes. By J. R. Leaming, M. D. (Reprinted from *The Medical Record*, May 25, 1878.)

Variola: its Causes, Nature, and Prophylaxis, and the Dangers of Vaccination. By C. Spinzig, M. D.

The Pith of the Dried Corn-Stalk as a Uterine Tent: and General Remarks upon the use of Uterine Tents in Gynæcological Practice, with Cases. By W. T. Goldsmith, M. D., Atlanta. (Reprint from the *Transactions of the Medical Association of Georgia.*)

Fiske Fund Prize Essay on the Causation of Typhoid Fever.

Medicine, the Present and Future. An Address delivered to the Graduates of Evansville Medical College, February 27, 1878. By J. W. Compton, M. D., Professor of Materia Medica and Therapeutics in Evansville Medical College. (Reprinted from the *St. Louis Medical and Surgical Journal*, June, 1878.)

The Annual Announcement of the Department of Medicine and Surgery of the University of Michigan for 1878–'79.

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A Hystero-Psychosis; Epilepsy dependent upon Erosions of the Cervix Uteri. By George J. Engelmann, M. D.

Minutes of the State Medical Society of Arkansas, at its Third Annual Session.

Forcible and Rapid Dilatation of the Cervix Uteri, for the relief of Stricture, Chronic Endo-Cervicitis, Conical Cervix, Flexions, Sterility, etc. By John Ball, M. D., Brooklyn, New York. (From a paper read before the New York State Medical Society, June 19, 1877.)

A Clinical History of the Medical and Surgical Diseases of Women. By Robert Barnes, M. D., Lond., Obstetric Physician and Lecturer on Obstetrics and the Diseases of Women to St. George's Hospital. Second American from the Second and Revised London Edition. With 181 Illustrations. Philadelphia: Henry C. Lea, 1878.

Elementary Quantitative Analysis. By Alexander Classen, Professor in the Royal Polytechnic School, Aix-La-Chapelle. Translated with Additions, by Edgar F. Smith, A. M., Ph. D., Assistant in Analytical Chemistry in the Towne Scientific School, University of Pennsylvania. With 36 Illustrations. Philadelphia: Henry C. Lea, 1878. Pp. 328.

Transactions of the Medical Society of the State of New York for the year 1878.

Annual Reports of the Supervising Surgeon-General of the Marine-Hospital Service of the United States, for the fiscal year 1876 and 1877. By John M. Woodworth, M. D.

The Antagonism of Therapeutic Agents; and what it Teaches. The Essay to which was awarded the Fothergillian Gold Medal of the Medical Society of London for 1878. By J. Milner Fothergill, M. D., Edin., etc. Philadelphia: Henry C. Lea, 1878. Pp. 160.

On the Therapeutic Forces: An Effort to consider the Action of Medicines in the Light of the Modern Doctrine of the Conservation of Force. By Thomas J. Mays, M. D., Member of the Luzerne County Medical Society, etc. Philadelphia: Lindsay & Blakiston, 1878. 12mo. Pp. 143. Price, $1.25.

Visions: A Study of False Sight. (Pseudopia.) By Edward H. Clarke, M. D. With an Introduction and Memorial Sketch by Oliver Wendell Holmes, M. D. Boston: Houghton, Osgood & Co, 1878.

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Acute Fatty Degeneration of New-Born. By Mary Putnam-Jacobi, M. D., of New York. (Reprinted from the *American Journal of Obstetrics and Diseases of Women and Children*, Vol. XI., No. III., July, 1878.)

Report of Two Thousand Cases of Disease in Children, treated at the Demilt Dispensary, New York. With Notes. By P. Brynberg Porter, M. A., M. D. (Reprinted from the *American Journal of Obstetrics*, April, 1873.)

Stricture of the Male Urethra: Its Radical Cure. By Fessenden N. Otis, M. D., Professor of Genito-Urinary Diseases in the College of Physicians and Surgeons, New York; Surgeon to Charity Hospital, etc. New York: G. P. Putnam's Sons, 1878. Pp. 352.

The Identification of the Human Skeleton. A Medico-Legal Study. To which was awarded the Prize of the Massachusetts Medical Society for 1878. By Thomas Dwight, M. D., of Boston, late Professor of Anatomy at the Medical School of Maine.

Medical Communications of the Massachusetts Medical Society. Vol. XII., No. IV., 1878. Second Series. Vol. VIII., Part IV. Boston: David Clapp & Son, 1878.

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QUARTERLY REPORT ON LARYNGOLOGY.

No. XV.

By GEORGE M. LEFFERTS, M. D.,

CLINICAL PROFESSOR OF LARYNGOSCOPY AND DISEASES OF THE THROAT, COLLEGE OF PHYSICIANS AND SURGEONS, N. Y.; LARYNGOSCOPIC SURGEON TO ST. LUKE'S HOSPITAL, ETC.

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1. Bottini's second operation for total extirpation of the larynx was performed August 29, 1877, and the details have only lately been given to the profession. The operation is a noteworthy one, insomuch as it was entirely carried out with the aid of the galvano-cautery knife, and was free from all hæmorrhage, in spite of the fact that the disease required an extensive destruction of tissue and the removal not only of the larynx, but also of a portion of the œsophagus. Special attention is likewise called to the fact that in a little more than half of the already recorded instances of the operation death has been due to the development of a pneumonia.

The description of the steps of the operation, as we find them described in the original article, calls for no comment. They did not vary from the established method of procedure, except in certain minor details rendered necessary by the peculiar location of the growth.

The operation was undertaken on account of an epithelioma of the larynx, and the patient died on the third day of double pneumonia.

6. Lupus of the larynx being unquestionably a rare affection, the description by Krishaber of the laryngoscopic appearances in Beringier's case will not be without interest. Whether or no they, in reality, were indicative of the affection in question, the reader must judge—the patient suffered from *lupus erythematodes* of the nose. The mucous membrane covering the arytenoid cartilages was markedly swollen and hyperæmic, the inflammatory process diminishing over the ary-epiglottic folds; the right false cord much swollen, hiding in great part the corresponding vocal cord, the free edge of which, however, could be seen in phonation. The left vocal cord was visible throughout its entire extent, was red, and covered by miliary granulations. At a point corresponding with the vocal apophysis of the left arytenoid was a projection or warty growth, the result of a hypertrophic inflammation, specially pronounced at this spot. The epiglottis and the left false cord were but little affected.

8. A very complete review of the general subject of stenosis of the larynx, due to hypertrophy of the vocal cords, and of its literature, will be found in Catti's admirable article upon this rare affection. The sole method of treatment has heretofore been a tracheotomy to relieve the

life-threatening dyspnœa. The author has had the satisfaction of treating the three cases which he details by dilatation of the larynx after Schroetter's plan, and bringing them to a successful result without recourse to the knife.

9. Following the account of a case in which a papillomatous growth in the larynx reproduced itself in part after a lapse of seven years, we find the following practical remarks on the general question of recurrence: Dr. Cohen observes that it is usually asserted that recurrence is very frequent. In his own practice recurrence has been quite infrequent, except in cases occurring in tuberculous subjects. The few cases of recurrence that have come to his knowledge have almost without exception been those in which the evulsion of the growths has not been thorough in the first instance. That incomplete evulsion has occasionally been due to lack of skill in manipulation he is willing to admit, and he has been in the habit of sending cases which resisted his own efforts to other practitioners accustomed to intra-laryngeal operations, to test their manual dexterity, before abandoning the case to time and physiological resorption; but the most frequent cause of incomplete extirpation has been the premature withdrawal of patients from treatment, satisfied with more or less complete restoration of voice and ease of respiration, and anxious to return to their domestic or their business avocations. The recurrence of papillomas is therefore, in his opinion, in the main due to incomplete extirpation or to inefficient cauterization of the tissues from which they have been torn. There is nothing in their structure threatening recurrence without apparent cause.

The best method of eradicating papillomas of the larynx is their removal or evulsion with laryngeal forceps, and thorough cauterization of the points of implantation or growth with the laryngeal galvano-cautery. Soft growths in the upper portion of the larynx can sometimes be dug out or scraped off with the finger-nail, as he has been able to do in a few instances. Sometimes, as specially announced by Voltolini, they are soft enough to be brushed off, as it were, with a sponge, first passed into the larynx beyond them; sometimes, as we all know, they are soft enough to become detached in spontaneous paroxysms of cough. In the majority of instances, however, evulsion with forceps is requisite. If the growths are located beneath the vocal cords, there is usually so much difficulty in seizing them that, if the services of a very skillful manipulator are not available, the best practice is to gain more direct access to the growths by exposing the crico-thyroid membrane, to cut the membrane free from the thyroid cartilage, and then to twist, cut, or pull the growths off with forceps, and cauterize the wounded tissue to prevent repullulation, maintaining the orifice in the larynx patent until satisfactory cicatrization has been completed. If the growths are so situated that they cannot well be reached through the crico-thyroid space, division of the thyroid cartilage becomes requisite, to give more direct access to them. When the growths are above the level of the cords, except in rare instances, where skillful intra-laryngeal manipulation is beyond the reach of the patient, or has failed, and in emergency admitting of no delay, any external operation for their removal is, in my opinion, as unjustifiable in the main as incision of the walls of the abdomen and the uterus to remove a child, at term, which is susceptible to skillful delivery with the forceps. The patient would survive in either operation, most likely. Even when treated in the ventricles of the larynx, growths can often be successfully extirpated through the mouth, if the ventricular band be first divided, to expose them.

Papillomas of the larynx removed by external operations are by no means less liable to recurrence than others as thoroughly removed through the mouth; and, as a matter of course, neither one operation nor the other can secure immunity from new growth in other portions of the larynx. The sacrifice of vocal cords and other laryngeal structures, for extirpation of benign papillomas of the larynx, recently reported from Great Britain, appears to my mind, as far as I may judge from the published record, an unnecessary precaution against recurrence, to say the least of it, especially if, as is inferred from the report, no opportunity had been given to test the feasibility of their removal or destruction through the mouth.

10. The details of Dr. Cohen's novel and interesting case are as follows: He was consulted in January, 1878, by a patient in reference to an osseous tumor in the right-nasal fossa, of several years standing; ostensibly and to the best of his knowledge the result of a blow received in boyhood, on the superior maxilla, with such force as to detach an incisor tooth. The tumor appeared to be developed from the palatine ridge of the superior maxilla, and to involve the vomer also. It gave the patient considerable annoyance, excited headache, had distorted the nose a little, and was painful to the touch; but it was hardly of sufficient size, considering its protracted development, to demand operative interference at the time. As the patient resided several thousand miles away, and feared that he would be too distant from efficient aid in case a necessity for removal should arise in the near future, it was decided to operate upon him, and, at his own request, to use the burr of the dental engine to grind the tumor down, rather than to remove it with the gouge, a recent attempt at which had failed to do more than greatly increase his suffering for several days.

The affected nostril was securely tamponed posteriorly, a wire being substituted for thread, as less liable to be cut through during the operation. The patient was then etherized and placed in the recumbent posture. The ala of the nostril was held upward and outward by means of a hoop improvised from a hair-pin; an incision was made over the surface of the exostosis, through the mucous membrane and periosteum, which were then peeled off to both sides in mass, by means of a blunt-edged elevator, such as is used to strip the hard palate in uranoplastic operations. The mass, being well exposed, was then gradually ground away by Prof. Darby, with the burr of his engine, a gentle stream of water being continuously propelled upon the parts, to keep down the heat of friction, and to wash away the débris, so as to secure a clear field for operation. (The tampon fully protected the pharynx from blood and water.) This being done as effectually as was deemed practicable, some prominences left by the burr were then scraped away, with a sort of hooked graver, after which Prof. Darby carefully polished all the exposed surface of bone with a small corundum wheel. The action of the engine was eminently satisfactory, and all jarring of the parts was avoided by its use.

The operative procedure being over, the tampon was removed, the periosteum and mucous membrane replaced, the nostril occluded anteriorly with a cotton compress that had been steeped in carbolized oil (1 : 40) and the patient put to bed.

The wound did well, insignificant fragments only of the injured mucous membrane sloughing, and filling up by granulation in a few days.

13. At a recent meeting of the Medical Society of Vienna, Dr. Chiari showed a specimen of osteoma of the trachea, taken from a woman aged 25, who had died of acute tuberculosis. In the anterior wall of the trachea, between the innermost layer of the mucous membrane and the tracheal cartilage, was a bony structure, which, on close examination, was found to be an osteoma. The substance constituting the new growth presented true bone with medullary spaces. It had the form of a lamina 4 centimetres (1.6 inch) long, 3 centimetres (1.2 inch) wide, and 3 or 4 millimetres (.16 to .12 inch) thick. At the lower part of the trachea, and in the right and

left bronchi of the first order, there were small lamellæ and some miliary bony deposits; while nothing of the kind was to be found in the upper portion of the larynx as far as the trachea. This was a case of heteroplastic osteoma, the new growth not being the effect of inflammatory processes, and occurring where, in the normal condition, bone is never found. These heteroplastic osteomata are very rare; putting aside the osteomata of the dura mater, and in the eye, which are referable to inflammatory processes, they are found only in the lungs and in the skin. Dr. Chiari could find only one other case of osteoma of the trachea described.

16. In their paper, Fauvel and André do not attempt to give a description of the pathological histology of alterations of the larynx in cases of laryngeal phthisis, but simply publish the result of their researches in the larynx of one tuberculous patient; the alterations which existed upon this larynx extended all over the surface of the organ, and it was easy to see, with the naked eye, all the modifications that supervene during the course of tuberculosis; a point worthy of note was the fact that these alterations were principally situated in the adherent borders of the epiglottis, at the basis of its laryngeal surface in the ventricles, on the superior vocal cord, which latter, however, was less implicated on its marginal border than was the inferior vocal cord. The whole extent of the mucous surface was œdematous and ulcerated, dotted over by small elevations which were irregularly distributed, lifting up the mucous membrane, and forming little tumors varying in consistence according to the period of their evolution; these tumors were either isolated or assumed a linear distribution, leaving between them insterstices, which, by the aid of the microscope, were shown to contain a great number of pus globules, some few red globules, and epithelium at different stages of degeneration; the sections which were made, and which formed the subject of the researches, were taken from the whole extent of the mucous lining, from the epiglottis down as far as the third ring of the trachea. The lesions which were found on nearly all the sections taken from the zone extending from the base of the epiglottis to the cricoid cartilage were so advanced that it was extremely difficult to divide them. The mucous membrane in the neighborhood of the arytenoid cartilages, and especially of the thyroid cartilages, was nothing but a granulating mass, irregular in aspect, but filled with cellules undergoing fatty degeneration, and numerous pus globules. What was found there was what exists in the final period of decomposition of any tissue, irrespective of the cause that may have brought about that decomposition. Such was not the case in the portion of the mucous surface situated above the base of the epiglottis, or that of the trachea, or on the free border of the right superior vocal cord. In these portions were found, in their primitive stage, all the series of development of tubercles.

17. In his instructive study of ulcerations of the larynx, Fauvel divides them into two classes: 1. Ulcerations proper, of the mucous membrane of the organ; and 2. Ulcerations produced in this membrane by a general cause, original or acquired, such as the herpetic, syphilitic, tuberculous, scrofulous, or leprous diathesis; each class then receives a careful consideration as the article proceeds.

27. Krishaber's procedure for obtaining laryngeal tolerance consists in causing the patient to thrust his finger down his throat at regular intervals, until spasm of the parts no longer takes place, or, in other words, until the sensibility of the pharynx, velum, etc., is so blunted that the necessary pressure of the laryngeal mirror can be borne.

28. Dr. Kittler observes that, since the introduction of the laryngoscope, paralytic affections of the laryngeal nerves and muscles have assumed an important position, so that many cases of hoarseness, aphonia, etc., formerly attributed to anatomical lesions, are now shown to be purely

paralytic. The present paper considers mainly the forms of vocal paresis and paralysis attending phthisis. These may either precede the lung-disease, or may develop themselves during its progress.

In the former case vocal paralysis manifests itself chiefly in functional weakness of the organ, want of clearness, and loss of voice on slight exertion, as speaking or singing, also hoarseness after a slight cold. This condition of things, termed by Gerhardt (*Virchow's Archiv.*, vol. xxvii., pp. 68 and 296) atony of the vocal cords, may precede phthisis for months, and even years. The results of laryngoscopic examination in cases of this kind are various. Sometimes they are almost negative; at other times, especially after a continued effort of the voice, there are some injection and swelling of the vocal cords or of the arytenoid mucous membrane. Sometimes, again, a highly anæmic condition of the mucous membrane is all that can be discerned; and, lastly, in some cases the impairment of the voice can be shown to be due to diminished mobility of the cords and defective closure of the rima glottidis. The grave import of these apparently insignificant changes is only indicated by a history of phthisis in one or both parents. The true nature of a case of vocal atony, hitherto attributed to over-exertion of the voice, is often revealed by the sudden accession of hæmoptysis or colliquative sweating, indicating the latent pulmonary disease. On the other hand, we cannot, in the absence of a history of phthisis, regard vocal atony, even of the most obstinate kind, as seen in singers, actors, etc., as a forerunner of phthisis.

Vocal paralysis, occurring in the progress of phthisis, may be of two kinds—either combined with lesion of the mucous membrane, or with the mucous membrane intact. The most frequent sources of the former are catarrh and ulceration. Although inflammatory swelling of the mucous membrane is in itself sufficient to produce intense hoarseness, yet in these cases we must consider the impairment of the voice due rather to a paralysis of the laryngeal muscles, in consequence of serious infiltration of the muscular fibres, than to the catarrhal affection, which is often indeed very slight. The paralysis is mostly double, and affects chiefly the muscles that close the glottis and those that regulate the tension of the cords. The site of ulceration, when this is present, has considerable influence on the form of paralysis; thus ulceration of the posterior wall usually impairs the action of the transverse arytenoid muscle. Paralysis of the muscles that open the glottis is very rare in cases of phthisis.

Paralysis of the vocal apparatus, without concomitant lesion of the mucous membrane, may also be either double or unilateral, and may be considered functional. When occurring in tuberculosis, as also in chlorosis, it is probably due to the deficiency of red corpuscles in the blood, and a consequent impaired nutrition of the brain and the laryngeal nerves; or it may also be due to reflex irritation of the peripheral fibres of the vagus, either in the infiltrated lung-tissue or on the surface of the almost always adherent pleura. Fränkel (*Virchow's Archiv.*, vol. lxi., p. 261) has demonstrated degenerative changes in the laryngeal muscles, which throw considerable light on the nature of phthisical atony of the vocal cords. The primitive fibrillæ become wasted and more or less detached from the investing sarcolemma, or they may disappear in places almost entirely, leaving only empty sarcolemma tubes. The investing perimysium may also undergo change, either through excessive growth of its connective tissue or increase of its cellular element. This functional paralysis in phthisis most frequently affects the tensor muscles of the glottis, also the closers and the muscles attached to the posterior wall, and is often associated with hyperæsthesia of the mucous membrane and soft parts surrounding the larynx.

More rare than the above forms is paralysis induced by pressure on the recurrent laryngeal nerve, caused by pleuritic exudation, by cicatrices, or by degenerated bronchial glands. Gerhardt estimates one case of paralysis of the vocal cords to twelve of ulceration; and Ziemssen regards this as even too high. When due to impaired nervous function, the affection is mostly right-sided, though cases on the left side have been observed, while paralysis of both recurrents is exceedingly rare.

Dr. Kittler appends two illustrative cases—one a case of complete paralysis of the right recurrent and paresis on the left side, due to pressure of an aneurism of the innominate and aorta; the other a case of double paralysis of the recurrent nerve in a strumous subject with goitre.

29. Dr. Knight has chosen for the subject matter of his present report, "Bilateral Paralysis of the Posterior Crico-arytenoid Muscles," a condition about which several interesting discussions have of late been held, and some cases reported. (*See* Rep. No. XIV., Ref. 33, 50, 53, and Rep. No. XV., Ref. 36, 52.) A full *résumé* of this serious affection (but not so rare as usually considered, we believing with Waldenburg that paralysis of these muscles occurs much more frequently than would appear from the few cases published) will be found at the above reference, and the reader is referred to it as a very complete and practical essay on the subject.

32. Kolmann has come to the following conclusions as the result of his investigations upon the question of the relation of lymphadenitis retropharyngealis to retro-pharyngeal abscess in children:

1. Swollen and inflamed retro-pharyngeal glands (lymphadenitis retropharyngealis) are a frequent accompaniment of diseases of the nose, mouth, and pharynx, as well as of the ear, and are probably to be regarded as the rule in the same way as a swelling of the subcutaneous glands in eczemas of the skin, and in scrofulous inflammation in general. Among exciting causes are prominently to be mentioned chronic inflammations as found in scrofulous children, and the acute affections of which inflammations of the mouth are one symptom, as diphtheria, measles, scarlatina, aphthæ, syphilis. With regard to small-pox he has had no experience.

2. Retro-pharyngeal abscesses are always secondary—idiopathic abscesses to a lymphadenitis, traumatic abscesses being consecutive to injuries, and sinking abscesses following caries of the vertebræ. Lymphadenitis is also a secondary affection, following a scrofulous or infectious disease of the mucous membrane. Abscesses called by Bokai secondary abscesses are to be classed with the sinking abscesses.

3. Retro-pharyngeal abscesses are not limited to the first two years of life (Schmitz) or to childhood (Bokai), although this affection in adults is extremely rare.

35. The review is of Krishaber's case of foreign body in the larynx, with remarks, O'Toole's case of foreign body in the ventricle of the larynx, and Brugelmann's method of producing the necessary illumination for laryngoscopy by the use of petroloxygen.

36. Meschede observes, *à propos* of his case of bilateral paralysis of the dilator muscles of the glottis, that paralytic affections of the larynx are now divided into two groups—vocal and respiratory; the muscles affected in the latter group are the posterior crico-arytenoid pair, which serve to open the glottis, and are in this respect opposed by the lateral crico-arytenoid pair. While cases belonging to the former group—the vocal—are not uncommon, those belonging to the latter group, especially those involving both posterior crico-arytenoids, have hitherto been exceedingly rare. Moreover, of the cases hitherto recorded, some appear to have been cases of only partial paralysis, while in others the diagnosis was scarcely conclusive. In the present case, the existence of complete paralysis of

both posterior crico-arytenoid muscles was clearly established. The laryngoscopical conditions have been figured in Bürow's "Atlas of Laryngoscopy," Table x, Fig. 6. The patient was a girl aged 19, and was stated by her mother to have been unable to speak for the last two months; there was some bloody expectoration, but no signs of lung-disease could be made out; deglutition, though at sometimes slow, was not impeded. The prominent affection was the difficulty of respiration. When the breathing was undisturbed, it was noisy and somewhat laborious, inspiration being especially difficult. But on the least exertion there was great dyspnœa, and each inspiration was accompanied by a loud howling sound. Respiration generally was retarded, the pulse small and quick. Menstruation, which had always been irregular, had ceased for several months. Examination with the laryngoscope was exceedingly difficult, being rendered still more so by impeded and diminished mobility of the tongue. When examined while respiration was calm, the vocal cords remained stationary, the glottis not expanding with inspiration. But, when respiration became accelerated from agitation or any other cause, the condition of the vocal cords became reversed; they became closely approximated during inspiration, instead of separating, so as to come almost into contact. At the same time they were not tense, and it was seen that they were drawn downward and together by the current of inspired air. That this was not a case of spasm of the glottis was evident, seeing the dyspnœa did not occur in paroxysms, but every time that respiration was in any way accelerated, when also the vocal cords became immediately approximated; moreover, the dyspnœa was of too long duration. Had this condition of the larynx not been observed, the case might have been regarded as one of hysterical simulation, but paralysis of the dilators of the glottis can never be simulated. Nevertheless, it was interesting to note the effect of an audibly-threatened use of the actual cautery if the patient did not speak by a certain time; for, some little time before the appointed day, she began to articulate somewhat imperfectly, while on the actual day, and within sight of the heated cautery, speech became almost natural, showing how undefined may become the boundary line between hysteria and simulation. No real improvement was, however, attained, and the dyspnœa became so great as to suggest at times the idea of tracheotomy. For the first six days after her admission to the hospital, the treatment consisted entirely of local faradisation, without the slightest benefit, and of warm baths and cold affusion, with the result that on the eighth day menstruation became reëstablished. A regular treatment, consisting of systematic subcutaneous injection of strychnia, was now commenced, the salt employed being the soluble sulphate, in a one-per-cent. solution. The amount injected was at first small (.015 grain), and produced no results; thus showing incidentally that the later beneficial results were due not to the mechanical and psychical effects of the punctures, but to the larger quantities injected. The amount of strychnine sulphate was now gradually increased up to .07 grain, and this increase was from the first attended with marked improvement. At first, the injections, which were given morning and evening, were followed by sound sleep and increased freedom of respiration, which latter was of short duration at first, but gradually became more established, until, after the injection had been employed nineteen times, breathing remained and continued entirely free. After a period of four months, there was a slight relapse, which readily yielded to the same treatment.

41. Porter's treatment of catarrh is as follows: For the acute form of the disease the indications are first, to relieve the irritation, and second, to induce resolution. For the former indication the patient may inhale thrice daily, or oftener, from a warm, dry goblet, twenty drops of this mixture: ℞. Iodine, ʒ i, pot. iodidi, grs. x, ætheri, chloroformi, āā ℥ ss.

The vapor from this often gives quick relief. For the second desideratum he has found nothing so generally useful as full, free doses of carbonate of ammonia, not less than five grains each third hour, in combination in the most of cases with squills. He believes that the *rapid* exhibition of a diffusive stimulant and alkali will, when given early, relieve most of these cases. As the general system is often depreciated, it is well to follow in a few days with tonics.

In the treatment of chronic catarrh four points must receive attention. (*a.*) The constitutional condition is of first importance. In strumous patients, iodide of iron and cod-liver oil are generally indicated, while, if the catarrh depends upon syphilis and there is much debility, give small doses of mercury after the manner of Dr. Keyes, or, if an ulcer exist and the bones are implicated, iodide of potassium is indicated. In the catarrhal diathesis before mentioned, stimulating blennorrhetics accomplish much, such as ten grains of cubebs in syrup four times daily, with or without carbonate of ammonia. A pill containing zinci. sulph. gr. $\frac{1}{4}$, ext. nucis vom. gr. $\frac{1}{2}$, ferri sulph. et aloe, āā gr. i, may also be given night and morning if there are want of tone and dyspepsia.

(*b.*) All local causes must be guarded against. Polypi should be removed, inhalations of dust and repeated acute attacks prevented, and thorough search made for necrosed bone or calcareous deposits which may exist.

(*c.*) The parts should be kept well cleansed. The douche, that has been so much used and abused, in a few cases has undoubtedly injured the middle ear as reported by Dr. Roosa and his disciples. However, there are few of our agents that have not been used unadvisedly, and so have done harm. In whatever experience Dr. Porter has had, no case has been seen injured, and unless there is perforation of the tympanum he does not believe that in the most cases liquid can be forced against the inclosed air, while if the tympanum is already injured it shows that there has been disease before.

A better means than the douche for cleansing the parts is a syringe with a long, slender, slightly-curved nozzle, closed at the end, with fine perforations on its convex side. A weak, warm solution of pinus canadensis and common salt, or, if there is much odor, carbolic acid in two hundred times its weight in water, may be thrown gently against the parts and so dislodge any foul accretions.

(*d.*) Local medication is important. Where there are ulcers they should be touched with a weak solution of nitrate of silver, or stimulated by iodoform if the surrounding parts are thickened. When the crusts continue to form, good results may be attained by touching the mucous membrane with twenty grains of chloral hydrate in an ounce of water. These remedies must be applied carefully and directly. The points of disease must be found and touched. With a good light and a slender, flexible probe, around the end of which is wound a little absorbent cotton, the application may be made exactly—may be pressed against the affected surfaces. A good astringent lotion, where such is needed, is a solution of from one to five grains each of the sulphates of zinc, iron, and copper, in an ounce of water. It must be remembered, however, that no definite formula can be given for every case. The general direction of treatment may be indicated; the physician must adapt it to each case.

One of the great obstacles in the way of recovery is the thickened membrane over the turbinated bone before mentioned. This should be removed either by a sharp probe-pointed bistoury, or, what is much better, by a ring knife, with the cutting edge on the inside of the part opposite the handle. This is passed over the projecting mass and drawn out. Bleeding follows, which, though copious, is never dangerous, and the parts heal in about ten days.

42. Dr. Porter, in his excellent paper on "Tubercular Laryngitis," tells us that, being impressed with the belief that pulmonary tuberculosis is the outgrowth of a preëxisting dyscrasia or diathesis, a local evidence of a constitutional fault, and that this evidence may be manifested wherever the structures are anatomically and pathologically favorable, he will attempt to show briefly that the larynx is, by reason of its formation and function, liable to tubercular deposit.

(*a.*) In the larynx there exists the adenoid tissue shown by Heitler to be most abundant in the ary-epiglottic folds and over the arytenoid cartilages, the place where, in the larynx, the infiltrations are first noticed in phthisis. Add to this fact the result of Klein's and Burdon-Sanderson's observations concerning the relation between the occurrence of tubercle and the adenoid tissue and the lymphadenoid nature of tubercle, and you have a strong point in favor of the existence of tubercle in the larynx.

(*b.*) Tuberculosis in its local manifestations is mainly a disease of the respiratory tract. Not only does the larynx form a portion of this tract, but it is in such close relationship to the lungs that morbid processes may reach the larynx from the lungs by continuity of surface. Thus Von Ziemssen states that, in the *post-mortem* examinations of phthisical patients, he has repeatedly seen aphthous or flat ulcers, which Foster believes to be tubercular, extend by way of the bronchial tube and trachea to the larynx.

(*c.*) Catarrh of the bronchial tubes may often be the exciting cause of tubercular disease in the lungs, and the larynx is not infrequently involved in, and is exceedingly liable to, the catarrhal inflammations. Other exciting causes may have an influence in determining invasion in the larynx in tubercular subjects, such as the hyperæmia from excessive effort or the irritations induced by detritus from diseased lungs in contact with a sensitive laryngeal mucous membrane.

Premising, then, that the larynx is for the above reasons susceptible of tubercular invasion, we may concede Virchow's doctrine that the larynx is the best place to study tubercle, if in addition we find that the changes which do occur in the larynx in tuberculosis are characteristic. He does not mean that in all cases of laryngitis in phthisis we can find true tubercle, for there are many instances in which the catarrhal and follicular inflammations predominate, depending, it may be, on a tuberculous diathesis. The point in question is this: If pulmonary phthisis depends on tubercular infiltration and is a constitutional disease, then the typical laryngeal inflammation of phthisis, arising from like causes and in direct sympathy with the lung-disease, is tubercular also, or, as Flint ("Phthisis," p. 127) states it, "both have a common causation." Indeed, some of our best authorities (Tobold's "Diseases of the Larynx," p. 124, Ziemssen's "Cyclopædia," vol. vii., p. 833) limit the term laryngeal phthisis to the lesions of the larynx following pulmonary consumption, and which are caused by miliary tubercles and tubercular inflammation.

One of the first evidences of laryngeal implication is that, even before there has been any noticeable infiltration, the mucous membrane may have a peculiar pallor, not the mottled appearance sometimes seen in simple follicular inflammation, but a general anæmia. In contrast to this there is often a dull red line of inflammation at points where there are the most vibration and motion. The hyperæmia from these and other causes results in local irritation and the deposit of the degenerated plasma before referred to. This symptom occurs very early in the disease, and is often overlooked or neglected. The subjective symptoms at this stage are inconstant hoarseness, dryness, and sometimes a tickling sensation, producing troublesome hacking cough. This cough is doubtless often due to reflex irritation of the laryngeal nerves, from disturbances of the pneumogastric by reason of the tubercular process in the lungs.

The laryngeal muscles may soon afterward become involved, and their function impaired either by deterioration of the muscular fibres, or by the mechanical obstruction offered by the tubercular infiltration. The first, according to observations recently published by Fränkel, is accomplished thus: There is, first of all, destruction of the transverse striæ of the muscular fibres, which may be reproduced by a fine-grained molecular (tubercular?) mass, or the nutrition and action of the fibrillæ are mechanically destroyed by compression consequent upon infiltration in the connective tissue. I believe also that this infiltration may so press upon the nerve fibrillæ as to further reduce the contractile effort of the muscles. In this condition, and for the reason above given, the patient's voice will be weak, or become weak after continued effort. If the adductor muscles are affected, there will be at times more or less complete aphonia; if the tensors suffer, there will be change in the vocal pitch or compass; and, as both sets of muscles are generally implicated, both of these symptoms may be noticed.

The next step in the progress of tubercular laryngitis is the infiltration of portions of the larynx, especially in the regions of the arytenoid cartiage and ary-epiglottic folds. Tumefaction of the mucous membrane over the cartilages, generally most intense on one side, may supervene, while the folds frequently assume a pyriform shape. The mucous membrane over the invaded parts is congested and distended, but not often actively inflamed. Sometimes in this stage there is evidence of follicular change, and this has been erroneously exalted as the primary lesion. I believe with Schrötter, Gibb, and others (Chamberlain, "Proceedings Conn. State Medical Association," 1876), that even these changes are tubercular when occurring in a tubercular subject. Wahlberg has found tubercular masses in these thickened parts where the follicles were normal, showing positively that not only is this condition not the result of follicular inflammation, but may exist without; when all the other parts of the larynx are more or less diseased, the follicles do not remain intact, but we must not mistake the effect for the cause. Where this typical inflammation is well marked, it will be generally found that pulmonary lesions also exist, and in the majority of cases in the lung of the side in which the larynx is most diseased. In this way the laryngoscope has become a valuable aid in the diagnosis of phthisis.

The pathological changes of this stage resemble those of tubercular deposits elsewhere. There is an infiltration of altered fibrinous exudation with a further development of small cells with a single nucleus, or of large cells with multiple nuclei; these, imperfect and irregular in shape, surrounded by a network of connective tissue, are crowded together in nodules or infiltrate the margins of the ulcers where the nodules are broken down.

There may be a sudden irruption and breaking down of miliary tubercles in the larynx, following the chronic tubercular infiltration, as described in illustration by Rindfleisch. These may break down and so ulcers occur. Miliary tubercle in the larynx has been well described by Tobold, "Chronic Diseases of the Larynx," p. 121, and by such authorities as Ter Maten, Turck, and Von Ziemssen, so that at this day it may scarcely be denied.

When the disease has advanced to ulceration, we find, however, that, in by far the greater number of cases, this is due to destructive change in the nodules crammed with cells of low vitality, and the gradual thinning and death of the mucous membrane. The character of an ulcer may generally be known by section and careful examination of its base. If we make a section through a laryngeal ulcer, with the microscope we may not find evidence of cheesy degeneration of the infiltrated mass, because the shallowness of the tissue in which the ulcers are and the liability of the tubercles to break down, unless protected as they are, for example in the lung, forbid the change; but we do find, according to Rheiner, Hasse, Rindfleisch, and others, the unchanged tubercular granulations. An illustration of tubercular laryngitis, by Wahlberg, shows the infiltration of tubercular elements surrounded by bands of connective tissue at the base of the ulcers, the mucous membrane having been destroyed.

Ziemssen divides the laryngeal ulceration of phthisis into four classes: 1. That depending upon true tubercle; 2. Follicular ulceration; 3. Specific infiltration of the sub-epithelial layer of the mucous membrane with cells and nuclei; and 4. Aphthous or erosive ulcers. It is interesting, however, to note that, even in the three forms which he is indisposed to ascribe to tubercular changes, he is not wholly able to ignore tubercular influence. Of the follicular ulceration he follows Rindfleisch and says: "The primary condition in this form of phthisical ulcers, aside from the scrofulous or tubercular diathesis, would be a purulent follicular catarrh, which only gives occasion to deeper alterations under the influence of that diathesis," i. e., without the tubercular element these deeper lesions do not occur. In discussing the third form, this author says the tubercular diathesis creates a vulnerability of tissue in which the specific infiltration excites inflammatory cell proliferation and subsequent caseation, and of the fourth form, the aphthous, the statement is made that they may proceed from decaying miliary tubercles, while Forster (Pathological Anatomy) says most of the so-called aphthous ulcers are tubercular.

46. The following remarks made by a well-known authority on the subject of laryngeal stenosis and the details of the cases, which are presented in illustration, will be read with interest. They are extracted from the "Transactions" of the Royal Medical Society of Vienna, April 5, 1878: "Although Dr. Schrötter had already made two communications, and published an essay on this subject, he thought it right to again bring it forward, partly because he had some cases of recovery to relate, and partly to again call attention to his previous advice. He divided the cases of laryngeal stenosis into two groups: one in which the contraction was treated after the performance of laryngotomy, and another in which the danger of suffocation appeared to be imminent, but laryngotomy was not performed. The first group was subdivided into two sections, according as the stenosis was treated from above or from below. The latter method, which had been carried out by some, but almost always with negative results, he had not practised, because the stenosis formed a canal narrowing downward toward the trachea. As regarded dilatation from above, the experience of Roux, Depray, Navratil, and Weinlechner had given only partial results. There was some improvement, but no such cure as to allow the removal of the canula. Dr. Schrötter had many times arrived at this result, and was able to show some cases. The first case was that of a man who had been under treatment from April, 1875, to July, 1876. Laryngotomy was performed on account of laryngeal perichondritis. Complete recovery followed; the patient (a teacher of languages) being able to employ himself in instruction for twelve hours a day without any trouble of importance. He spoke aloud and distinctly, and suffered no inconvenience from bodily exertion. The second patient who was shown still wore the canula, but it had been stopped for some time, and might have been removed had not the patient objected, on the ground that tracheotomy had been twice already performed on him, on account of sudden paroxysms of suffocation from some unexplained cause, and he was unwilling to expose himself to the chance of a third operation. The patient came under Dr. Schrötter's care in 1873, wearing the

canula; in July, 1874, he was able to have the canula stopped, and it had remained so. His speech was quite intelligible, and there was no dyspnœa. The third case shown was that of a man who had been under treatment since October, 1877, for stenosis of the larynx, the result of perichondritis following typhus. For the last twenty days the patient had plugged the canula; he spoke well, and his breathing was calm. It was necessary for him to continue to wear the canula, as otherwise contraction would return. His voice was rather hoarse, in consequence of his having taken out the tube for the first time two days previously, which had produced irritation of the larynx. The fourth patient was still under treatment. He could introduce the bougie himself in the manner recommended and described by Dr. Schrötter (see *London Medical Record*, April 15th). He next spoke of the treatment of cases of laryngeal stenosis, in which laryngotomy had not been performed. The first attempts of the kind were of old date; in them, however, it was only attempted to insufflate medicines into the larynx and trachea. Desault and Weinlechner had attempted to cure stenosis of the larynx without success. Dr. Schrötter had obtained favorable results in the most advanced stages of stenosis. He showed a woman who had suffered from severe stenosis after variola. The patient came under treatment in October, 1876, and in April, 1877, might be regarded as cured. She also suffered from chronic laryngeal catarrh, and hence was still hoarse. The case was the more interesting as the stenosis was caused by a cicatricial membrane. Dr. Schrötter showed a drawing, which illustrated the condition at the commencement of the treatment. The glottis was almost entirely occupied by a membrane, and anteriorly there was adhesion of the vocal cords. Following Türck's example, Dr. Schrötter divided the membrane with a knife, and then proceeded to dilate the stenosis. In this, as could be seen by laryngoscopic examination, he had perfectly succeeded. The vocal cords were quite free up to the anterior angle, and, as this condition had already remained unchanged for some time, readhesion of the vocal cords was scarcely to be feared. Dr. Schrötter had also treated successfully a number of other patients, who, however, were not at present in Vienna. Dr. Weinlechner asked Dr. Schrötter how he would deal with less intelligent patients in regard to the application of the ring of thread. The experiment was very simple, and could be easily carried out; but he did not think that every patient could do it for himself, like the one who had been shown. Dr. Schrötter replied that it was necessary not to intrust the patient with his own treatment until the stenosis was cured; and the only object was to prevent a return of the contraction. He had as yet met with no patient who had not learned to introduce the tube. In one case, that of a boy, there was difficulty in the introduction of the tube. A flexible forceps was therefore introduced through the external opening in the larynx into the mouth, and made to seize the bougie. This manœuvre was learned by a nurse.

50. At the close of the lengthy but interesting article on laryngeal syphilis, we find the following directions for its treatment; and, as they represent the present plan in Vienna, we give them in full. In recent and mild cases of the disease—likewise where there are superficial *plaques* in the pharynx, or erosions or slight ulcerations in the larynx—inhalations of corrosive sublimate in alcohol and water, as recommended by Demarquay and Schnitzler, are used, and highly spoken of. Under this treatment all the least serious of the pharyngeal manifestations quickly disappear. Ulcerated processes of any extent will require, in addition, cauterization with nitrate of silver in substance.

In other cases, where certain secondary symptoms exist, the inhalations must be associated with the internal use of mercury; inunctions are usually employed. In extensive ulceration of the epiglottis and of the larynx, pencilings with a solution of iodine and iodide of potash in glycerine are spoken of as being very efficacious; it is likewise of use in dysphagia caused by ulceration of the epiglottis, new growths, and hypertrophies of the mucous membrane and follicular swellings—potash, internally, is to be used at the same time. In perichondritis—if time be allowed—inunction over the larynx of the *ungt. cin.*, and internally some preparation of potash; a treatment which not infrequently diminishes the swelling within a day or two. If stenosis of the larynx and urgent dyspnœa are present, tracheotomy is of course a necessity.

Nervous affections of the larynx, sometimes existing with a mild catarrhal inflammation, are best treated by inhalations of chloride of potash and insufflations of muriate of morphia. The galvano-cautery has been used by Schnitzler in several instances to destroy the warty syphilitic outgrowths found in the larynx, and is recommended where pencilings with the above iodine solution fails. Finally, the various forms of stenosis of the pharynx, larynx, and trachea, due either to polypi or cicatrices, must be relieved by appropriate surgical measures.

51. Scheff's case is probably unique. The laryngoscope showed the epiglottis, arytenoid cartilages, and ary-epiglottic folds, as well as the false vocal cords, to be entirely normal; but between the true cords—beginning at the anterior commissure—and from beneath their edges stretched a thin, transparent membrane, freely supplied with capillary vessels, which extended backward so as to cover at least two-thirds of the rima glottidis, and ended in a crescentic edge which formed, with the posterior laryngeal parts, an oval opening through which the respiratory current passed. The patient, aged 22, complained of no dyspnœa; his voice was hoarse and toneless.

In default of all pathological causes, Scheff's diagnosis of *diaphragma glottidis congenitum* must be held as correct.

52. After detailing the history of a case of bilateral paralysis of the abductors of the vocal cords, Smith suggests the following possible and novel explanation as to its causation: He says that it seems probable that, at any rate in some cases, the first step is an exhausting overuse of the muscles. The abductors of the vocal cords differ from the other muscles of forced inspiration in that they cannot rest. So long as labored inspiration continues, the glottis must be kept open, or rarefaction of the air within the trachea will take place, and the unopposed atmospheric pressure on its outer surface will drive together the movable parts of the air-passages—i. e., the arytenoids—and thus make still more difficult the already exhausting task of keeping them asunder. In cases then in which, for other causes, continued deep inspirations are necessary, the occurrence of exhaustion of the abductors of the vocal cords is a self-multiplying evil; the greater the fatigue the less possible is it for them to rest; the more they tend, as all exhausted muscles do, to give up acting, the more are they driven by the want of breath to act. If, then, over-fatigue is to be looked upon as a possible cause of muscular atrophy and of the changes in the nerve-centres associated with it, may we not find in the strain of work thrown upon the abductors of the cords, in some cases of continued dyspnœa or overexertion, a possible explanation of their being sometimes affected by a form of atrophic paralysis?

53. Schnitzler commences in the *Wiener Klinik* what is evidently intended, when completed, to be a new text-book on the subject of laryngoscopy and rhinoscopy. The present number contains four lectures—the first, on the history of laryngoscopy and rhinoscopy; second, on the laryngeal mirror and the illuminating apparatus; third, on the method of examin-

ing; and fourth, on the difficulties and obstacles to an examination. Each lecture appears to be full and complete.

56. Dr. Sawyer makes the following suggestion in regard to the treatment of glandular sore-throat, by which he means catarrhal congestion or inflammation in and around the glandulæ of the mucous membrane of the pharynx and larynx, or what has been called dysphonia clericorum—the chronic sore-throat to which persons are liable who use their voices extensively, especially in large rooms or in the open air: He orders a saturated aqueous solution of borax, which the patient applies to his throat by the aid of Corbyn's throat-spray. The spray should be employed for several moments thrice or more frequently a day, and midway between meals. If the larynx be much implicated, the patient should inspire deeply while the spray is playing upon his throat. The cure may be expedited by the application of astringent solutions to the pharynx and larynx by means of suitable brushes. When there is much secretion, extract of eucalyptus is a good local astringent, which may be used in the form of lozenge. Half a dozen of Corbyn's or of Cooper's lozenges may be sucked slowly during the day.

61. Dr. Wegner, at a recent congress of the Society of German Surgeons, described the case of a woman, aged fifty-two, who was operated on in September of last year. Tracheotomy was first performed on account of severe dyspnœa; and, the presence of cancer having been detected by laryngoscopic examination, the whole larynx was removed, along with the epiglottis. The patient was now in good health, and showed no signs of a return of the disease. She had used Gussenbauer's artificial vocal apparatus occasionally, and had spoken distinctly with it. She could, however, wear it for only short times, as, in consequence of the fauces being imperfectly shut off from the trachea, portions of food and mucous readily passed into the latter, and interfered with the play of the metallic tongue. The cause of this was probably the removal of the epiglottis, from which proceeding Dr. Wegner would abstain in any subsequent similar operation, unless it were found to be indispensable. Dr. Wegner then showed the action of an artificial vocal apparatus on a girl aged eleven, who at the age of seven had an attack of diphtheria, which was followed by cicatricial closure of the trachea, and complete destruction of the vocal cords. When she was admitted to the hospital she wore a tracheal tube, and was quite voiceless. By means of laryngotomy and the use of bougies, the laryngeal passage was made pervious. Dr. Wegner supplied her with an apparatus, which differed from Gussenbauer's in the absence of the tongue-shaped epiglottis, and further, in the circumstance that the voice-tube was introduced first, and then the tracheal tube. With this apparatus she could speak easily and distinctly.

62. Dr. F. Wong gives some curious particulars respecting a strange remedial agent employed by the Chinese in cases of *cynanche tonsillaris*—the disease they term *Ngo-how*, or "Goose-throat," and the remedy in question is called *How-tsao*, a soft stone not unlike biliary calculus in appearance. It is expensive, being worth twenty times its weight in silver, and is said to come from Siam. A dose of twenty or thirty grains of this in powder, taken in water, is thought to be very efficacious. Dr. Wong mentions having seen a case where this remedy was given, and where it certainly appeared effective, after gargles and astringents had been applied in vain. The specimens of the stones which have come under his notice appear like animal concretions, and are of various sizes, some being smaller than pigeons' eggs, while others are as large as hens' eggs. The story goes that, when a monkey is wounded, the animal, from its natural instinct, picks out the proper medicinal herbs, masticates them, and applies them to the wound, so that successive layers are in this way laid

on so as to form a mass. In time the wound heals, and the lump of dried herbs falls off; it is then picked up by the Siamese, found by them to possess peculiar virtues, and sent in small quantities to China as a drug.

CONTRIBUTED BY DR. EDWARD FRANKEL.

SURGERY.

On the Influence of Pregnancy on Traumatisms.—(*Gaz. Méd.*, 1877 and 1878.) The reciprocal influence exercised by pregnancy and traumatisms upon each other has been made the subject of extensive researches by Verneuil. The following conclusions have been arrived at: 1. Pregnancy and traumatisms may run their course simultaneously without influencing each other. This applies to the severest as also to the slightest injuries. 2. Accidental or surgical injuries of any extent may interfere with pregnancy by causing abortion or miscarriage, the death of the mother or that of the fœtus only. 3. Certain surgical requirements, though perhaps not without danger to the normal course of pregnancy and to the life of mother and child, nevertheless sometimes become necessary and life-saving in order to conquer diverse affections, which, left to themselves, would be still more dangerous. 4. Pregnancy may disturb the course of traumatisms by retarding or preventing their healing, or by favoring the occurrence of complications. 5. Pregnancy may aggravate diverse non-traumatic affections, which may then call for operations which, in the non-pregnant state, could be avoided or postponed. 6. Parturition favorably modifies the course of certain traumatisms, which were sustained during the course of pregnancy. 7. The lying-in state exerts an unfavorable influence on accidental or surgical injuries acquired after delivery, and aggravates those acquired during pregnancy.

The following rules may be established: 8. To operate forthwith in case of affections which immediately endanger the mother's life. 9. To postpone operation to a favorable time in affections which, though not immediately endangering life, still threaten it by their progress, and which, if not energetically treated, show a tendency to become incurable. 10. To operate in case of affections which, though not disturbing pregnancy, or influenced by it, still may give occasion to difficult labor. 11. If possible, not to operate in affections which do not influence pregnancy, and only indirectly encroach upon pregnancy or labor. 12. To discard operating entirely in affections which only encroach upon the form and functions of less important organs, or which, after confinement, are capable of spontaneous cure. 13. If possible, to avoid operating during the lying-in period. In case of imminent danger, to operate rather before the end of pregnancy, or, if possible, postpone operation as long as possible, two to four months after confinement. E. F.

Miscellany.

Aid for Yellow-Fever Sufferers.—The Medical Society of the County of New York has received over sixteen hundred dollars for the aid of physicians and the families of physicians who have suffered from yellow-fever. Further subscriptions may be sent to the president, Dr. J. C. Peters, 83 Madison Avenue, New York.

The following physicians, many of them volunteers from distant places, are known to have died in the discharge of their duties, but the list is probably by no means complete: Dr. R. S. Ringgold; Dr. George W. Woolfolk; Dr. McKim; Dr. W. C. Cone; Dr. Nugent; Dr. Harlan; Dr. L. C. Hernon; Dr. I. Lehman; Dr. Norris; Dr. Blitchfieldt; Dr. Potts; Dr. Sappington; Dr. Blanton; Dr. Barnes; Dr. Cattell; Dr. Charles Gallagher; Dr. B. W. Avant; Dr. Charles Bonner; Dr. Catlett; Dr. T. L. Bond; Dr. Menees; Dr. J. R. Renner; Dr. John B. Hicks; Dr. John Erskine; Dr. Cage; Dr. McGregor; Dr. Milton; Dr. Hawkins; Dr. J. S. Bankson; Dr. W. W. Hall; Dr. Hughes; Dr. Gillespie; Dr. E. J. Hughes; Dr. May; Dr. F. Sarner; Dr. J. C. Rogers; Dr. Hopson; Dr. K. T. Watson; Dr. W. R. Hodges; Dr. T. M. Dickinson; Dr. R. B. Williams; Dr. Mead; Dr. Booth; Dr. P. F. Whitehead; Dr. J. G. Byrne; Dr. Nathan McGee; Dr. J. E. Penn; Dr. M. J. McKee; Dr. J. W. Kibbee.

The McDowell Monument.—This memorial, about to be erected at Danville, Ky., will consist of a shaft of granite, thirty feet high. The style will be Doric. On its base will be the following inscription: "Beneath this shaft rests Ephraim McDowell, M. D., the father of ovariotomy, who by originating a great surgical operation became a benefactor of his race, known and honored throughout the civilized world." On the right side of the base will be a laurel wreath, with the inscription, "A grateful profession reveres his memory and treasures his example." On the left side will be an historic inscription, with the date of his birth, attendance at the University of Edinburgh, and his first ovariotomy in 1809; on the posterior face is the inscription, "Erected by the Kentucky State Medical Society, A. D. 1879."

Massachusetts Medical Society Prize.—The first of these annual prizes has been carried off by Dr. Thomas Dwight, who presented a paper entitled "The Identification of the Human Skeleton." The following are the terms upon which the competition is based: The committee on publications are authorized to offer the sum of *two hundred dollars* as a prize, or honorarium, to any one Fellow of the society who shall give to the satisfaction of said committee, on or before the 15th of April next, in an essay or report (worthy of a prize), the best and fullest evidence of any original or meritorious *professional work*, done by himself during the two years next preceding said date, in experimental investigations, scientific researches, or clinical observations. Papers may be sent to Dr. George C. Shattuck, 6 Newbury Street, Boston, on or before April 15, 1879, with motto and name.

The Boylston Prize.—The announcement of the committee for this year shows that no prize was awarded. The questions were: 1. Antiseptic Treatment: What are its Essential Details? How are they best carried out in practical form? 2. Diphtheria: Its Causes, Diagnosis, and Treatment.

These are offered again for competition in 1880. The questions for 1879 are: 1. Are Epidemics and so-called Contagious Diseases necessarily dependent upon Material Agencies, acting through the Stomach or otherwise? 2. Athletic Sports, Training, Violent Exercises, etc., as now practised by Young Men: Their Temporary or Permanent Influence upon the Health.

Appointments, Honors, etc.—Dr. Fordyce Barker has resigned his position as one of the Surgeons to the Woman's Hospital, New York. Dr. William Osler has been appointed one of the Attending Physicians to the Montreal General Hospital. The Queen has conferred the honor of knighthood on James Salmon, M. D., Inspector-General of Hospitals and Fleets. The fifty-first annual meeting of German Naturalists and Physicians was held at Cassel, September 11th to 18th. Dr. Van Winiwarter has been appointed Professor of Clinical Surgery at Liége, in place of Gussenbauer, who has been called to Prague.

Chloral as an Anæsthetic for Children.—Dr. Bouchut (*Gazette des Hôpitaux*) recommends the use of chloral as an anæsthetic for children. He gives one dose, not exceeding forty-five grains, in children under three years of age. In half an hour the patient is asleep, and in an hour insensible. The anæsthesia lasts from three to six hours, and is followed by no unpleasant consequences. Thirty grains of chloral may be given without danger, Bouchut says, to children between two and five years of age. These opinions are based on a large experience during the last nine years.

New Hampshire Medical Society.—At the eighty-seventh annual meeting held in Concord, June 18th and 19th, Dr. L. M. Knight, President, in the Chair, the following officers were elected for the ensuing year: President, A. F. Carr, M. D., Goffstown; Vice-president, T. J. W. Pray, M. D., Dover; Secretary, G. P. Conn, M. D., Concord; Treasurer, L. B. How, M. D., Manchester; Executive Committee on Papers, etc., Drs. P. A. Stackpole, Dover, J. W. Parsons, Portsmouth, and A. H. Crosby, Concord.

Yellow-Fever.—We have no information regarding the epidemic beyond what is furnished in the valuable weekly reports of the Surgeon-General of the Marine Hospital Service, and published in the daily papers. By the report up to September 26th the total number of deaths in New Orleans was 2,608, and in Memphis 2,131. At a later day we hope to receive some important contributions to the history and pathology of the disease.

High Temperature in Yellow-Fever.—Dr. C. S. Mercier reports, in the *New Orleans Medical and Surgical Journal* for September, a case of yellow-fever in which the temperature in the axilla reached 111° fifteen minutes before death. Two thermometers were tried, the latter a test one, with the same result. A very interesting discussion on the subject of yellow-fever will be found in the same journal, by gentlemen actively and constantly engaged in its treatment at the time.

An Ample Hospital Staff.—We read in a letter to the *Boston Medical and Surgical Journal*, on the Hospitals of

Chicago, that the "Woman's Hospital of the State of Illinois" is a small hospital situated in the south division of the city, having accommodations for twelve patients. The medical staff consists of a surgeon-in-chief, four assistant surgeons, two assistant physicians, an electrician, a resident physician, and eight consulting physicians—seventeen in all.

Death from Vomiting under Ether.—The *British Medical Journal* of August 17th records a death which occurred in the Northern Hospital, Liverpool, August 9th. The patient, a man whose hand had been injured by a saw, underwent operation under ether, and, during recovery from the anæsthetic, was suffocated by a portion of the vomited matter, which entered the windpipe and lungs.

International Congress of Mental Medicine.—This congress held its session in Paris, August 5th to 10th, under the presidency of M. Baillarger. Papers were read by Hack Tuke, Echeverria, Laseque, Fabret, Voisin, and others. The question of the disposal of criminal lunatics was the subject of animated discussion. Insanity, paralysis and idiocy were treated of in the papers read.

Medical Practitioners in France.—According to the *Lyon Médicale*, there were in France, in 1876, fourteen thousand three hundred and twenty-six practitioners of medicine—two thousand less than in the year 1866.

Journalistic Notes.—The *Ohio Medical and Surgical Reporter* has been discontinued, in consequence of increased demands upon the time of its managers, and the failure to transfer it to other hands.

Death from Chloroform.—The *Ohio Medical Recorder* mentions a death from chloroform in Cleveland, but gives no particulars.

Deaths from Goitre.—An extremely interesting monograph on "Death from Goitre, and the Radical Cure of Goitre," by Prof. Rose, just published by Hirschwald, throws a new light upon the cause of sudden deaths in goitrous persons which have been frequently observed, and sometimes in the course of operation. In three such cases, Rose has found that the pressure of the increased thyroid has led to the fatty degeneration of the cartilaginous rings of the trachea, thus transforming the rigid and resisting cylinder of the air-tube into a membranous and flaccid canal. A sudden movement of torsion or of flexion of the head suffices, then, to make an elbow in the tube and flatten its lumen. This change is also accompanied by fatty degeneration and dilatation; and thus we have here all the conditions of sudden death, especially under anæsthesia or during the brusque movements of the head and neck while an operation is being performed.—*British Medical Journal.*

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from August 14 *to September* 13, 1878.

King, W. S., Lieutenant-Colonel and Surgeon.—Assigned to duty at Carlisle Barracks, Pa. S. O. 156, Department of the East, August 31, 1878. Granted leave of absence for six months, on account of sickness, with permission to apply for an extension, if necessary. S. O. 190, A. G. O., September 2, 1878.

Simons, James, Lieutenant-Colonel and Surgeon.—Assigned to duty at Fort McHenry, Md. S. O. 156, C. S., Department of the East.

Head, J. F., Lieutenant-Colonel and Surgeon.—Assigned to duty at Fort Independence, Mass. S. O. 156, C. S., Department of the East.

McParlin, T. A., Major and Surgeon.—Assigned to duty at Fort Hamilton, New York Harbor. S. O. 156, C. S., Department of the East.

Irwin, B. J. D., Major and Surgeon.—Granted leave of absence for one year. S. O. 176, A. G. O., August 15, 1878.

McClellan, E., Major and Surgeon.—Assigned to duty at Fort Lapwai, Idaho. S. O. 104, Department of the Columbia, August 22, 1878.

Notson, W. M., Major and Surgeon.—Relieved from duty in Department of the Platte, ordered to Philadelphia, Pa., and report arrival to Surgeon-General. S. O. 176, C. S., A. G. O.

Kinsman, J. H., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at Baton Rouge Barracks, La. S. O. 22, Department of the South, August 7, 1878.

Bartholf, J. H., Captain and Assistant Surgeon.—Assigned to duty at Fort Stevens, Oregon. S. O. 104, C. S., Department of the Columbia.

Koerper, E. A., Captain and Assistant Surgeon.—Assigned to duty at Fort McKinney, Wyoming Territory, relieving Major Notson. S. O. 77, Department of the Platte, August 20, 1878.

Vickery, R. S., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at Plattsburg Barracks, N. Y. S. O. 164, Department of the East, September 11, 1878.

Lauderdale, J. V., Captain and Assistant Surgeon.—Relieved from duty in Department of the Missouri, ordered before the Army Medical Board, New York City, for examination for promotion, and then report by letter to the Surgeon-General. S. O. 176, C. S., A. G. O.

Fitzgerald, J. A., Captain and Assistant Surgeon.—Relieved from duty in Department of the Columbia, ordered before the Army Medical Board, New York City, for examination for promotion, and then report by letter to the Surgeon-General; to take effect when his services can be spared. S. O. 176, C. S., A. G. O.

Steinmetz, William R., Captain and Assistant Surgeon.—Granted leave of absence for one year. S. O. 186, A. G. O., August 28, 1878.

Torney, G. H., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Wingate, New Mexico. S. O. 150, Department of the Missouri, August 20, 1878.

Gray, W. W., First Lieutenant and Assistant Surgeon.—Assigned to temporary duty at Fort Vancouver, Wyoming Territory. S. O. 104, C. S., Department of the Columbia.

Brechemin, L., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post Surgeon at the new post to be established near Camp "J. G. Sturgis" (Bear Butte, Dakota Territory) by Major Lazelle, First Infantry. S. O. 102, Department of Dakota, August 27, 1878.

La Garde, L. A., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Columbus, New York Harbor. S. O. 160, Department of the East, September 6, 1878.

Campbell, A. B., Captain and Assistant Surgeon.—Died at Chicago, Ill., on September 1, 1878.

Obituary.

Dr. Washington L. Atlee, of Philadelphia, died at his residence on Arch Street, September 6th; his malady was cancer of the stomach. Dr. Atlee was born at Lancaster, Pa., on February 22, 1808, and was consequently in his seventy-first year. He was the youngest son of William Pitt Atlee, and grandson of Hon. William Augustus Atlee, one of the early judges of the Supreme Court of Pennsylvania, his term extending from 1777 to 1793. His maternal grandfather was Major Washington Light, a soldier in the army of the Revolution. At the age of sixteen Dr. Atlee entered the office of his brother, Dr. John L. Atlee, at Lancaster, and, subsequently entering Jefferson College, with the third class enrolled at that institution, graduated in 1829. He then returned to Lancaster county, where he practised his profession and ardently pursued the study of botany and science. In 1849 he removed to Philadelphia, and, by invitation, filled the chair of medical chemistry of the Pennsylvania College until 1853, when, his private practice demanding much of his time, he resigned that position. He was an active member of the State and County Medical Societies, and the American Medical Association. A brilliant extempore speaker and an able debater, his weight was always cast in favor of a higher medical education, and a broad and liberal construction of the rights and duties of medical life. As a practitioner he was most famous for his advocacy of the difficult operation of ovariotomy. Commencing its performance and defending its propriety at a time when hardly another surgeon in the land dared support him, he vindicated its merits by his success in more than three hundred cases.

Dr. Atlee lived to see the practice he sought to establish generally recognized, by many of those, indeed, from whom he had encountered the greatest opposition. As a writer, he contributed ably to all the current medical and surgical magazines. The prize essays of the American Medical Association in 1853 included one written by him, and quite recently (1872) he summed up his extended experience in a volume on ovariotomy. The loss to his profession, which he adorned, and to society, where he was esteemed and admired, is a severe one.—*Medical and Surgical Reporter.*

Dr. Crawford W. Long, of Athens, Georgia, one of the discoverers of anæsthesia, died June 15, 1878, aged sixty-three years.

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Original Communications.

ART. I.—*On Gastro-elytrotomy.* By HENRY J. GARRIGUES, A. M., M. D., Brooklyn, New York, Fellow of the American Gynecological and New York Obstetrical Societies.

(Part II., see October number.)

SECOND PERIOD. *Fulfillment.*—It is a curious fact that, half a century after Ritgen's operation, the little town of Yonkers, on the border of the Hudson River, should be the first place in which the word gastro-elytrotomy sounded again after the long interval elapsed since the operation had been tried for the last time. In 1870 Dr. T. G. Thomas read before the Medical Association of that place a paper entitled: "Gastro-Elytrotomy, a Substitute for the Cæsarean Section."[1] He had then twice essayed it on the cadavers of non-pregnant women, and once (February, 1870) on that of one in the latter part of the ninth month of pregnancy, and had performed one operation on the living subject, which he reported in these terms:

CASE I. "*Gastro-elytrotomy performed on a living woman. A living child delivered.*—Within a month from the time of the experimental operation just recorded, I was called in great haste by Dr. T. C. Finnell to a case which he was attending with Dr. Richardson, under the following circumstances. The patient, a multipara aged about forty years, and at the end of the seventh month of utero-gestation, had been suffering from pneumonia for a week or ten days, and was now *in articulo mortis.* Dr. Finnell intimated to me that he could wait only a short time for me, for, as the woman was fast becoming comatose, he deemed it his duty to perform the Cæsarean section in the interest of the child, which might prove viable. I hastened to the patient's house, and found everything in accordance with what has been stated above: the patient, almost entirely pulseless, was cyanosed, breathing with a loud laryngeal rattle, and almost entirely unconscious. A rapid consultation was held between Drs. Finnell, Richardson, Jas. L. Brown, Walker, Lynch, and myself, and it was decided that the child should be at once removed by abdominal section.

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[1] *American Journal of Obstetrics*, vol. iii., No. 1, May, 1870.

"The patient being placed upon a table, anæsthesia was produced, so as to quiet her restlessness and jactitation, with a few inhalations of ether. I then passed my hand up the vagina and dilated the cervix slowly and cautiously, so that at a three-quarter distention no injury was done to its tissue. With a bistoury I then cut through the abdominal muscles, the incision being carried from the spine of the pubis to the anterior superior spinous process of the ilium. The lips of the wound were now separated, and by two fingers the peritonæum was lifted with great readiness, so that the vagino-uterine junction was reached. The vagina was now lifted by a steel sound passed within it, and cut, and the opening thus made was enlarged by the fingers. The cervix was then lifted into the right iliac fossa by the blunt hook, while the fundus was depressed in an opposite direction. I then passed my right hand into the iliac fossa and introduced two fingers into the uterus, while the left hand, placed on the outer surface of the uterus, depressed the pelvic extremity of the fœtal ovoid. The knee was readily seized, and delivery easily and rapidly accomplished. The child was born alive, but was a badly-developed, harelipped, and, as I before stated, premature infant. It lived about one hour, during which time the rite of baptism was administered to it. The mother, the wound in whose abdomen was closed by interrupted suture, died about the same time as the child.

"In completing the recital of this case, I need hardly point out the fact that the fatal issue for mother and child which occurred should not in the slightest degree be imputed to any inherent imperfection of the operation itself. It was unquestionably due to these two circumstances which characterized this individual case: first, that the woman was moribund when the operation was undertaken; and second, that the child was premature, undeveloped, and probably depreciated in strength by the toxæmia which had for days affected its mother in consequence of pneumonia. I think that I am correct in saying that al. the gentlemen present agree in the belief that nothing connected with its delivery could in any way have injured the child's prospects for life. The liquor amnii was unevacuated up to the moment when version was practised, and not an instant's delay, or the expenditure of any, even the slightest, force was developed as a possible cause of death. The child died, as we so often see premature children die, of want of cerebro-spinal and ganglionic nerve-power to maintain the functions of life in its new relations."

Five years later Dr. Thomas incidentally spoke of this operation in the New York Obstetrical Society,[1] and, in speaking from memory of a thing done at so remote a date, quite naturally committed some small mistakes, of which only one merits mention. He said that he enlarged the opening in the vagina with the *scissors*, while in the original paper it reads "with the *fingers*," and, as we shall presently see, this is a point of great importance, as it contains the clew to Dr. Thomas's success.

Eight years after this operation, Dr. Thomas performed another:

CASE II. [2]"*Laparo-elytrotomy successfully performed for both mother and child.*—On the 3d of December, 1877, I was requested by Prof. James W. McLane to see with him, at the Nursery and Child's Hospital, a woman who had been taken in labor some sixteen hours before. She resided in Harlem, about four miles distant, and had been attended there by Drs. Farrington, Dwyer, and Shrady, who, finding the pelvis so much contracted as to require an operation, had sent for Dr. McLane, and at his suggestion she was brought to New York. The labor at this time was far advanced, but her surroundings at home were so unfavorable that this was deemed the wiser course.

"The woman was Irish, twenty years old, married, and a primipara. She was very small and undeveloped; one leg was contracted and bent, and the thigh firmly flexed on the abdomen. The pelvis at the superior strait had been estimated by Dr. McLane, Dr. G. A. Sabine, and the other gentlemen above mentioned, at 2¾ inches in the conjugate diameter, though I question whether it measured more than 2½. At the outlet, the conjugate diameter was long, while the transverse was estimated at 2¼ inches.

"The question as to operative procedure, up to the time of my arrival, had been between evisceration, the child presenting by the breech, and Cæsarean section, the preponderance of opinion being decidedly in favor of the former. I proposed, as a compromise, laparo-elytrotomy, and, this being decided upon, Dr. McLane very kindly requested me to perform the operation.

"The patient being anæsthetized and laid upon a table, I cut through skin and adipose tissue from the superior spinous process of the ilium, along the upper edge of Poupart's ligament to the spine of the pubis on the right side of the body. Then I cut through the muscles, and, coming down to the peritonæum, lifted this, and touched the vagina. Dr. McLane now passing his finger through this canal and pushing it upward, I cut down upon it near the uterine junction. Then inserting my two index-fingers, I tore the vaginal wall downward. Immediately the uterus, contracting strongly, forced the breech of the child into the iliac fossa, and, hooking the index-fingers into the groins, I rapidly delivered. The child was asphyxiated, but by sharp slapping it soon recovered and cried lustily. From this time onward it did perfectly well.

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[1] *American Journal of Obstetrics*, vol. viii., p. 326, August, 1875.

[2] Ibid., vol. xi., p. 240, April, 1878.

"The wound having been thoroughly cleansed of blood-clots by forcing carbolized water through it by means of a Davidson's syringe, was closed by silver sutures throughout. No vessels were tied, and thus no foreign substance was left within it.

"The duration of the operation, from the time of the first incision to its completion, was thirty-five minutes. After its completion, the patient was put to bed, given an opiate, confined to fluid diet, and kept perfectly quiet upon the back.

"From this time the history is compiled from Dr. Beckwith's notes.

"*December 4th.*—Patient slept well last night, quieted by morphia administered hypodermically. At 8 A. M., temperature 99°, pulse 132. Milk given every two hours. 7 P. M., temperature 102°, pulse 140.

"*5th.*—8 A. M., temperature 99⅖°, pulse 124; 7 P. M., temperature 100°, pulse 128.

"Urine does not pass through catheter kept in bladder, but escapes *per vaginam.* A fistula evidently exists.

"*6th.*—9 A. M., temperature 101°, pulse 136. Wound washed out by vaginal injection of carbolized water every eight hours; water forced out through abdominal wall freely. 10 P. M., temperature 101⅖°, pulse 128.

"*7th.*—8 A. M., temperature 102⅖°, pulse 128; 7 P. M., temperature 98⅗°, pulse 116.

"*8th* (sixth day since operation).—8 A. M., temperature 98⅖°, pulse 108. Urine flowing now freely through catheter. When vagina is injected, very little water flows through wound. 11 P. M., temperature 100⅖°, pulse 116.

"*9th.*—8 A. M., temperature 98⅖°, pulse 124; 8.30 P. M., temperature 101°, pulse 124.

"*10th.*—8 A. M., temperature 99⅗°, pulse not recorded; 9 P. M., temperature 98⅖°, pulse not recorded.

"*11th.*—9 A. M., temperature 103°, and at 10 A. M., 104⅗°. As patient had lived in a very malarious district, rise of temperature was regarded as due to miasmatic poisoning. Quinine was given in scruple dose, and at 7 P. M. temperature was 100°.

"*12th.*—9 A. M., temperature 101⅕°, pulse 124; 8 P. M., temperature 103⅘°, pulse 128.

"*13th.*—8 A. M., temperature $101\frac{3}{5}$°, pulse 112; 8 P. M., temperature $98\frac{2}{5}$°.

"*14th.*—8.30 A. M., temperature $98\frac{2}{5}$°, pulse 92; 7.30 P. M., temperature $98\frac{2}{5}$°, pulse 88.

"Patient very steadily and certainly improving. December 15th, temperature taken every two hours, $98\frac{2}{5}$°, pulse from 92 to 104.

"From this time the patient went on steadily to complete recovery, the wound healing by second intention, the solution of continuity being filled up by granulations.

"It is in my mind a question whether the rise of temperature was due to miasmatic poisoning, or to septicæmia. My impression is that the former condition produced it, as it was markedly controlled by quinine, freely administered.

"On the 20th day after the operation, the bladder, which was undoubtedly injured by the operation, recovered its retentive power, the catheter was removed, and patient thenceforth passed her urine voluntarily.

"On the 25th day after the operation, one end of the round ligament protruded from the wound, which had now nearly healed throughout its length. This was ligated and cut off.

"On January 3d, thirty-two days after operation, the wound, which was originally five inches long, measured in length two and a half inches, and in depth half an inch. Vaginal examination showed on right side an opening with sharp, falciform border extending into iliac fossa, one inch in extent.

"On this date the patient was discharged cured. She and her child have since done perfectly well."

Dr. Thomas, in the paper read before the New York Academy of Medicine, on the 21st of March, 1878, from which the last-mentioned case is taken, declares[1] that, until some time after he had essayed it on the cadaver, he was fully under the impression that the idea had originated with himself, and, although he spoke of it freely with his professional friends in New York, none of them were able to correct his error until he mentioned it to Dr. Emil Noeggerath, who remembered having somewhere read of Ritgen's operation. After having seen, in the preceding chapter, how entirely the idea had been abandoned, nay, forgotten, this is easily understood by any one who is acquainted with the peculiarities incidental to life in this metropolis, that, in fact, contains two millions of inhabitants, widespread over different islands and part of the continent, and who knows what claims are laid on the time of a man of such a skill and such a fame as Dr. Thomas. Already, in his first publication on the subject, he gave such historical data about previous attempts as he had been able to obtain from Kilian's, Dewees's, and Velpeau's works.

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[1] *L. c.*, p. 230.

I think it is fortunate that Dr. Thomas was unacquainted with the difficulties encountered by his predecessors. Had he known the unsuccessful operations of Ritgen and Baudelocque, it is very likely that he never would have tried a plan that, in their hands, had proved so utterly a failure. As it is, prompted by his genius alone, he went to work and tried the idea originated in himself, and a splendid success put him in a place in vain aspired to by others. And *why did he succeed?* His operation is identically the same as that essayed fifty years before by Ritgen, except in this respect, that he did not *cut* backward in the vagina, but *tore* the vaginal wall as soon as he had made an incision large enough to admit his two index-fingers. This is by far the safer process, for by being torn the blood-vessels of the vagina are much less likely to bleed. Spontaneous ruptures of the vagina seldom give rise to dangerous hæmorrhage. They may nevertheless do so exceptionally, and we have seen that Baudelocque met with a hæmorrhage the moment he thrust his bistoury into the vaginal wall. Although in his case it does not seem to have warranted him in desisting from the operation, a troublesome hæmorrhage may occur, and it is therefore better to make the first incision bloodless by using the cautery, as suggested above.

As my chief motive for composing this dissertation is to enable the reader to form a clear opinion of gastro-elytrotomy, by comparing the old operations with the recent ones, and thereby to contribute to dispel the dread with which it has been surrounded by the damaging verdict pronounced against it by great authorities, I think it useful to make such additions to the description given by Dr. Thomas as I am enabled to by his own kindness, in answering certain questions put by me, and as he has authorized me to publish. He did not extend his incision precisely up to the spine of the pubis, by doing which he would have cut the epigastric artery. He made it at some little distance, say an inch, above Poupart's ligament, and did not extend it to the mesial line, exactly as recommended by Baudelocque, who places the inner angle of the abdominal wound at one inch and three-quarters above and outside of the spine of the pubis. Dr. Thomas did neither see nor cut the epigastric artery. As for the superficial artery, of the same name, which necessarily is cut, he merely applied temporary compression to it by a holding-forceps. The first incision in the vagina was made at some distance below the neck of the uterus, perhaps an inch or an inch and a half. This point is of importance, since an opening immediately below the os would injure the ureter. He made the incision just large enough to get through, and then he tore with his index-fingers, one turned toward the os uteri, the other toward the descending ramus of the pubis. Thus he aimed at making a longitudinal rent. He cannot state what shape it took, but he feels certain that it becomes stellate when the child passes. Else he does not think it would be possible to get it through. He tore only enough to insert the tip of his fingers, put together as for dilating the os. While the hand passes the fissure tears more, and finally, during the passage of the child, it tears still more. It is of course impossible to tell what direction the branches of the rent will take; this is the hazardous part of the operation, but the result so far shows that the risk is much smaller than in Cæsarean section. He neither saw nor felt the iliac vessels. In his first operation he removed the placenta *per vias naturales;* in the second, through the abdominal wound.

To Dr. Thomas, then, belongs the glory of having been the first who performed gastro-elytrotomy so as to extract a living child from a living mother in his first operation, and of having brought both mother and child to complete recovery in his second operation. In both cases the operation was perfectly indicated, the alternative being in the first Cæsarean operation, on account of the mother's moribund state, and her physician's unwillingness to let her die undelivered; in the other, either Cæsarean section or an embryotomy that would have been extremely difficult and dangerous to the mother, on account of the breech presentation, combined with considerable coarctation of the pelvis, and which, besides, would have cost the child's life.

The last, but by no means the least important, performer of gastro-elytrotomy we have to deal with is Dr. Skene. Between Dr. Thomas's two cases, he has performed the operation no less than three times with the greatest success:

Case I.[1] *Gastro-elytrotomy, performed in the interest of the mother after perforation of the head of the child.*—"Dr. Charles Corey was called to see the patient on Saturday morning, March 21, 1874. He then learned that she was a primipara at full time. Her general health had been fair for years; she was rachitic when a child, and did not walk until she was over five years of age. Labor began on the night of Friday, the twentieth. The os uteri was dilated, but the head, the presenting part, was wholly above the superior strait.

"When the os became fully dilated, the doctor ruptured the membranes, but the head did not at all engage in the pelvic cavity. Drs. Andrews and Fürgang were called in consultation, and it was decided to try version.

"At three o'clock on Sunday morning the operation was tried, but was found to be impossible, owing to the shortness of the antero-posterior diameter of the pelvis, which was not more than two and a half inches in diameter. At eight A. M., of the same day, delivery by craniotomy was undertaken, but, after perforating the head, that also was abandoned because of the œdema of the parts and the narrowness of the pelvis. I saw the patient in consultation with the gentlemen named, at two P. M., on Sunday, about forty-eight hours from the time when she was taken in labor. Gastro-elytrotomy was proposed and agreed to by all the gentlemen present, as the only means of giving the patient a chance for her life. It was also believed that if she died—which in all probability she would—she would be relieved from the severe labor-pains which still continued. At this time she was suffering from exhaustion. Her pulse was rather feeble and over one hundred and thirty. She was anæsthetized, and I operated with the assistance of the gentlemen in attendance, and Dr. George Cushing. The general rules laid down by Prof. Thomas were followed, and I can testify to the truth of his statement that the operation is exceedingly simple, and may be performed with rapidity and certainty, for, although the operation was unknown to me in every sense, except the description of it which I had read, I was able to make the dissections and deliver the child and placenta in ten minutes, and without making any haste. The patient came out from the anæsthetic very well, and remained free from pain afterward. The exhaustion and shock were but slightly increased by the operation, but they gradually became more marked, and she died seven hours after the operation.

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[1] New York Medical Journal, 1874, vol. xx., p. 401.

"There are several observations which I made during the operation, which are of sufficient importance to be worthy of special mention. The incision through the skin and superficial fascia was made from the spine of the pubis to the anterior superior spinous process of the ilium, as directed by Prof. Thomas. This I found to be longer than necessary. The muscles were then divided a little more than two-thirds of that distance. The opening made appeared to be rather small, but I found that it stretched with the greatest facility, and was therefore ample.

"The finger was used to raise up the vagina at the point where it was opened. I believe that this method is preferable to using the sound, as directed by Prof. Thomas. I was able in this way to avoid a large vessel which I felt pulsating. The finger was also used in place of the blunt hook to draw the cervix up to the right iliac fossa, while the fundus was carried to the left side.

"In place of delivering the child by version, as recommended by Prof. Thomas, I seized the occipital bone with the craniotomy forceps, and extracted the child with the greatest ease. At the same time I had the ordinary obstetric forceps at hand, and satisfied myself that I could have applied them to the head and delivered with more facility than I could by performing version.

"The experience afforded by this one case has fully convinced me that the operation should take the place of Cæsarean section, and in deformity of the superior strait it should be tried in place of craniotomy when the life of the child could be saved by doing so."

Case II.[1] *Gastro-elytrotomy performed successfully for mother and child.*—"Mrs. F., aged 31 years, born in England. She is rachitic, and, in giving her history, stated that she was unable to walk without support until eleven years of age. At twenty-five years of age her physician delivered her by performing craniotomy, after which she made a slow recovery, and was confined to her bed for six weeks. Some time after that she was delivered at the seventh month. The child lived only a few minutes. When she came to this country her physician gave her a letter stating the nature of her former confinements, and also that she had a deformed pelvis. This letter she brought to me in 1872, when I found that she was again pregnant. She expressed a strong desire to have a living child, and, upon examining the pelvis, I resolved to let her go until the beginning of the ninth month, when I proposed to induce labor, in the hope of obtaining a living child. Accordingly I brought on labor in the first week of the ninth month, and found an arm presentation. Version was performed with great difficulty, owing to the fact that the antero-posterior diameter of the superior strait was not more than two and three-quarters ($2\frac{3}{4}$) inches.

"By using strong traction, and extreme pressure over the uterus, depression of one of the parietal bones was produced, and thereby a small child was delivered, which lived for several months. Metritis followed, and she suffered great pain in her back and limbs. There was also partial paralysis of the limbs, which slowly disappeared. Altogether it was five weeks before she recovered. At that time she was strongly advised to give up child-bearing. Some time ago she called upon me and stated that she was pregnant, and urged me to save her child if possible. I told her, if she would take the risk, I would give her what I believed to be the only certain chance of having a child, and also the possibility of saving her own life. She cheerfully accepted the proposition, and expressed her determination to go to full time.

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[1] *American Journal of Obstetrics*, February, 1876, vol. viii.

"I gave the history of her case to Prof. T. G. Thomas and asked his advice and assistance. His kind reply was that he would be at my service at any time. Late in the afternoon of October 28, 1875, she called at my office, and, on examination, I found her at full time, the os uteri dilatable, and that she had slight uterine contractions.

"She was ordered to go home and to let me hear from her late in the evening. At ten o'clock her husband reported that she had slight pains, but was about the house and felt comfortable. I gave directions to call me during the night if her pains increased, and not to wait longer than four o'clock in the morning. Labor progressed, but, being unwilling to disturb me, they did not call me until six A. M. on the 29th. I then found that she had good labor pains, and that the os uteri was almost fully dilated; the membranes were unruptured, and an arm and the cord were presenting. I could feel the cord pulsating through the membranes, and the fetal heart was heard distinctly. I sent in all haste for Prof. Thomas, but most unfortunately he was engaged and could not come. I also sent for Drs. Corey, Cushing, and Stuart. While waiting for my medical friends, I was in constant dread that the membranes would rupture and the cord become compressed so as to destroy the child.

"I felt sure that I could not restore the cord and keep it in place when there was an arm presentation, and I dreaded the death of the child, which would have decided in favor of delivery by embryotomy, an operation which, under the circumstances, would have been difficult and very dangerous to the mother. Fortunately the membranes remained intact until my friends came. At nine o'clock, I performed gastro-elytrotomy, according to the method of Prof. Thomas, the best, indeed the only, authority on this operation. I opened the abdominal wall and also the vagina, before I ruptured the membranes. I then delivered by performing version.

"Having reason to believe, from the character of the fetal heart action, that the circulation of the child was slowly becoming interrupted, I made great haste to deliver as soon as I ruptured the membranes.

"The child, which weighed ten pounds, was slightly asphyxiated, but was easily restored.

"The time occupied, from the beginning of the operation until the child and placenta were delivered, was fifteen minutes, five minutes longer than my former operation. The extra time required was owing to slight hæmorrhage, caused by making the incision in the abdominal wall lower down than was necessary, and also by having to restore the prolapsed arm, and deliver by version.

"There was no shock or vomiting after the operation, and no hæmorrhage, primary or secondary, worthy of notice.

"Several hours after the operation, Dr. Stuart, in passing the catheter, discovered that the bladder had been opened. The opening in the vagina had been extended so as to enter the junction of the urethra and bladder, on the right side.

"I am satisfied that the bladder was not wounded at the time when I opened the vagina, but that it occurred during delivery.

"If I had had more time, and could have permitted the parts to distend gradually, the wound in the bladder would not have been made. It was unfortunate, if not bad management on my part, that I did not detect the wound in the bladder at the time of the operation, for then a few stitches could have been easily introduced and the catheter worn until the opening closed.

"When I became aware of the accident, I was unwilling to anæsthetize my patient again and submit her to the operation of closing the wound, because I feared that I might cause hæmorrhage.

"The second day the temperature went up, and she became quite tympanitic, but there was no tenderness to indicate peritonitis.

"The symptoms were due mostly, I believe, to a slight metritis, such as she had after her other confinements. These conditions continued for about four days, but the temperature did not at any time exceed 102°, and the pulse did not go beyond 120. On the sixth day, the tympanitis was relieved by an injection containing mint-water.

"Morphine was given at night to secure sleep, and quinine was used in the day in the hope of preventing malarial fever, which had troubled her, off and on, for years. From the sixth to the tenth day her condition was remarkably good. Her pulse and temperature were normal, her appetite good, and she had a scanty secretion of milk.

"On the tenth day she sat up in bed, contrary to our expressed wishes, but was apparently no worse for it.

"In the afternoon of the eleventh day she had a chill, followed by fever and free perspiration. She was quite well on the morning of the twelfth day, but the chill and fever were repeated in the afternoon.

"Quinine was freely given on the following day, and there has been no return of chills or fever. She believes that this part of her trouble was a return of her familiar ague, and I believe that her diagnosis was correct.

"The external wound healed by first intention, except at the two central stitches, where there was suppuration. Both the abdominal and vaginal wounds were completely healed on the fourteenth day. On the fifteenth day she sat up in a chair while her bed was being made, and, with the exception of the opening in the bladder, she was as well as one of her constitution could be at that date after confinement. At the end of three weeks she went out riding, and continued in good health from that time. On November 28th, I closed the small vesico-vaginal fistula, and two weeks afterward dismissed her well and sound. January 15, 1876, she is well, and nurses her strong, healthy baby.

"Finally, I wish to state positively that I believe the injury done to the bladder was the fault of the *operator*, not of the *operation*, and that I could avoid that accident in future. I am also satisfied that I could not have, under the circumstances, delivered that patient in any other way, with more *safety* to *herself*. I trust that the history of this case (the first successful one on record) will aid in placing the operation among the chief triumphs of obstetrical surgery, to the honor of Professor Thomas, whom I believe to be its author."

Case III.[1] *Gastro-elytrotomy performed successfully for mother and child, four days after beginning of labor. Lordosis. Anchylosis of both hip-joints. Previous pelvic peritonitis.* "The subject of this history is an unmarried Bohemian girl, thirty-seven years of age. She became pregnant, but concealed her condition from her relatives, with whom she lived, up to the full period of gestation. This she was enabled to do by being herself very much deformed in body.

"She was taken in labor on Tuesday, the 19th of June, 1877, and soon after the membranes ruptured; at least, this much was learned from subsequent inquiry. Her labor pains continued, but she did not disclose her true condition, nor did her friends suspect what was her trouble; but, becoming alarmed at her continued sufferings, they sent for Dr. S. Schmitzer on the morning of Friday, the 22d. The doctor found that she was pregnant at full term. The membranes were ruptured, the liquor amnii completely drained off, and the uterus contracted firmly round the child. The dilatation of the os uteri was only sufficient to admit the point of the finger.

"The patient was much below the average size, emaciated, her complexion sallow, and her skin dry and ill-conditioned in appearance. There was a well-marked forward curvature of the spine in the lumbar region; the sacrum was nearly straight, and formed a right angle with the axis of the spinal column; the symphysis pubis was deeper than normal, being about two inches. The antero-posterior diameter of the superior strait was said by Dr. Schmitzer to be one and one-fourth inch, and I am confident that it did not exceed one and one-half inch. The thighs were flexed to nearly a right angle to the body, and held there by anchylosis of the hip-joints. The knees could not be separated more than an inch and a half. The left lower extremity was four and three-fourths inches shorter than the right. A number of deep scars about the hips indicated the previous existence of large abscesses. These, existing in connection with the anchylosis, led to the conclusion that she formerly had had the hip-joint disease on both sides.

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[1] *American Journal of Obstetrics*, vol. x., p. 623, October, 1877. With two woodcuts after photographs.

"Dr. Schmitzer, finding the conditions described, satisfied himself that normal delivery was impossible. He then called Drs. Frickenstein and Weber to see her in consultation. These gentlemen agreed with the doctor regarding the deformity and the difficulties in the way of delivery.

"I saw the patient with Drs. Schmitzer and Alexander Hutchins at six P. M., on Friday, the 22d. She was then partially relieved from pain by a dose of morphine, which was given to her in the afternoon. The os uteri was still undilated beyond about half an inch. From the character of the presenting portion, as observed through the walls of the uterus, it was presumed to be the vertex.

"In consultation we agreed to first dilate the cervix, and then deliver by gastro-elytrotomy; but, as the patient was not having severe pains, and we were not then prepared to operate, we concluded to wait until morning, when we would have daylight. In the mean time dilatation of the os could be attended to. Early on the following morning, Saturday, Drs. Schmitzer and Hutchins began an artificial dilatation of the os, which was found to be a most difficult task. Owing to the deformity of the patient, the cervix was flexed backward so as to bring its axis to a sharp angle with the axis of the uterus, and there was not room enough in the pelvic cavity to permit bringing the cervix forward on a line with the body of the uterus. It was therefore almost impossible to pass the dilator through the internal os. After prolonged manipulation, dilatation to the extent of two and one-half inches was effected.

"At ten A. M., on Saturday, the 23d, four days from the time labor began, we were prepared to operate. In selecting this method of operating, we were guided by the fact that craniotomy was impossible under the circumstances, not alone because of the narrow superior strait, but also from the fact that the axes of the uterus and vagina were at right angles, which made it impossible to use the necessary instruments for delivery in that way. This statement will be indorsed by Drs. Schmitzer and Hutchins, who tried to dilate the cervix. Cæsarean section was suggested by the difficulties in the way of gastro-elytrotomy; but we preferred to encounter the obstacles rather than open into the peritoneal cavity and uterus ot the patient. The condition of the patient just before the operation was not encouraging. Her skin was dry and hot, tongue coated, temperature 102½°, pulse 98. Indeed, the operation was beset with difficulties from beginning to end, and on that account I will give the several steps in brief detail.

"To reach the point for incision parallel to and a little above Poupart's ligament, it was necessary to raise up the abdomen and retract the soft parts of the thigh as much as possible. The parts being thus brought into view, the abdominal walls were divided through the tegumentary and muscular layers. This was accomplished without much trouble; but, on reaching the region of the peritonæum, I encountered the products of a previous inflammation, which obscured all the normal anatomy. I have always believed that a previous pelvic peritonitis would greatly complicate this operation, and have dreaded that such a case might fall to my lot, and in this case I fully realized my expectations. The peritonæum, iliac fascia, bladder, and vagina were all glued together by plastic material, which rendered the normal tissues unrecognizable. This, and the space between the flexed thigh and the large abdomen being very narrow, made the difficulty of manipulating very great. The vagina also was narrow and unyielding, so that it could not be forced upward to guide us in the right direction. In this part of the operation there were three points of danger to be guarded against:

"*First.*—Wounding the peritonæum. There is no danger of doing this when the parts are normal, for then the peritonæum can be easily recognized and lifted up from the other tissues with perfect facility; but in this case everything was changed in appearance and character, and in place of easy-sliding tissues we had lymph and adhesions, both difficult to manage.

"*Second.*—I had learned, by former experience, that to open the vagina too near the symphysis pubis gives rise to the danger of the incision extending into the bladder during delivery.

"And *Third*, if the incision is made too near to the walls of the abdomen, there is danger of wounding the circumflexa iliac artery.

"We succeeded in avoiding the peritonæum and important vessels, but unfortunately the bladder, which was drawn upward and to the right by old adhesions, was wounded. That is not very surprising when it is remembered that in making this portion of the dissection I was guided mostly by the sense of touch, and the parts were so crowded together and changed in appearance as to be almost unmanageable. The point at which the bladder was wounded was just opposite the anterior superior spinous process of the ilium, a place where one would not expect to find it.

"When the cervix uteri was reached through the opening in the abdominal wall and vagina, we found dilatation sufficient to admit the points of the four fingers. Manual dilatation was then made and soon completed. The only difficulty experienced was in getting the fingers between the child's head and the uterus, so firmly was the latter contracted. The head presented transversely, with the occiput to the left side. Delivery by version has been advised in this operation, and was thought of in this case, but was ruled out as being impossible, owing to the firm contraction of the uterus. Deciding to deliver with the forceps, we proceeded to use them. Here we encountered another perplexing difficulty. The thigh stood up in front of the opening in the abdominal wall and the os uteri, and prevented the introduction of the instruments. After some awkward manipulating, we succeeded in grasping the head, and then delivery was easy and speedy. The placenta came away without trouble. There was very little hæmorrhage; the wound was closed with silver sutures and dressed with cotton wadding, secured by adhesive straps.

"The child was markedly asphyxiated, due, no doubt, to the continued contraction of the uterus so long after the escape of the liquor amnii. It was restored after the vigorous employment of artificial respiration. It was well developed, healthy in appearance, and weighed 7½ pounds. Drs. S. Schmitzer, Hutchins, Corey, Cushing, and Hunt were present and gave their counsel and assistance in the operation.

"She recovered from the anæsthetic promptly, and showed no symptoms of shock, nor did she complain of pain or discomfort. On the day following the operation her pulse was 94, and her temperature had fallen from 102½° (which it was at the time she was delivered) to 100°. The catheter was used frequently in order to keep the bladder from being fully distended.

"Drs. Schmitzer and Hutchins observed that, after a few days, the quantity of urine retained in the bladder became less and less, and at the same time the urine was seen to escape from the vagina.

"The introitus vaginæ was small and firmly contracted, which prevented free drainage, causing the urine to accumulate in the vagina and well up through the abdominal wound.

"A rubber tube, perforated with small holes for about two inches at one end, was introduced into the vagina for the purpose of draining off the urine. It answered well, and for twenty-four hours the urine flowed continuously and freely into a urinal, and all appeared to progress well for a time. The patient, unfortunately, was ignorant, obstinate, and unmanageable. Her mental obliquities and angularities were, like those of her body, well marked. After a day or two she became dissatisfied with the drainage-tube and would not let it remain any longer in the vagina. Every time that the doctor placed it there, she would withdraw it and throw it away, and no argument could persuade her to do otherwise. The urine, from this time, flowed freely from the abdominal wound, and occasionally from the vagina. Owing to the disagreeable disposition of the patient, it was impossible to keep her clean or comfortable. Her appetite was good, her bowels moved regularly, she slept well on small doses of morphine at bedtime, and her pulse and temperature were normal, but it was difficult to keep her wounds in good condition. She was cared for by her sister, who, although willing, was not skilled as a nurse, and, besides, she had her household duties to perform.

"Such being her surroundings, we concluded to send her to the hospital, and on the fifth of July, two weeks after delivery, she was taken there. She made the journey to the hospital, about three miles, very comfortably. When admitted, her condition gave evidence of want of proper nursing. The wound was healed except at the outer portion near the anterior superior spinous process of the ilium, where the fistulous opening was. Around the opening the parts were foul and covered with a superficial slough. Most of the urine escaped from this opening. There was also a free purulent discharge.

"She was placed upon tonic doses of quinine, and a little morphine at bed-time to relieve an uneasy restlessness. The wound, vagina, and bladder were kept thoroughly clean by the frequent use of carbolic acid and water. A stream was passed from the wound in the side through the vagina and then reversed. The bladder was also injected; the stream being carried in through the urethra and made to escape through the vagina and abdominal opening.

"To keep the wound in the best condition for healing, a rubber tube was introduced into the fistulous opening in the side, and it made good drainage when the patient could be persuaded to keep it in place, but she often pulled it out. After a few days the house physician succeeded in passing a perforated rubber tube from the abdominal opening out through the vagina and left it there. This made perfect drainage. Sometimes the urine would flow from one end of the tube, and sometimes from the other, according to the position taken by the patient, and she was unable to remove this tube, which was a great advantage.

"From this time the abdominal wound healed rapidly, and the drainage-tube was finally removed about the third of August. The urine flowed then from the vagina only. To drain the vagina, a hard-rubber bulb with a stem was used, which answered very well to carry off the water. The bulb was olive-shaped, and perforated closely with small holes. To the stem of the bulb a small flexible tube was attached which conveyed the urine to a vessel. A rubber urinal was obtained for her which she could wear while walking around, but for some reason, which no one could understand, she would not use it.

"Most of the time since the operation the bladder has retained more or less urine, and at this stage of her progress the house physician noticed that it began to retain more and more, showing that the fistulous opening was closing. Improvement in this direction continued until the twelfth of August, when the bladder had fully regained its power of retention, indicating that the fistula had closed.

"At this date (August 12th) her health is as good as it ever was. In short, the recovery of the mother is complete, and the baby, which was left at home, prospered for a time, but died when eighteen days old, from bad feeding and care.

"The notes here given of the case while in the hospital are brief extracts taken from the clinical records kept by the resident physician, Dr. McPharlin, to whose skill and constant care her complete recovery is largely due.

"In reviewing this case of gastro-elytrotomy, the second successful case on record, so far as I know, I may say that a more unfavorable case for operating could not well be imagined.

"The conditions of the patient in every particular relating to the operation, and the want of facilities for after-treatment, were such as to thoroughly test the merits of this method of delivery. Certainly, greater difficulties than were here encountered are not likely to occur in the future history of this operation."

Availing myself of my personal acquaintance with Dr. Skene, I have several times questioned him about the details of his operations, and am, through his kindness, enabled and authorized to add the following items. In his last operation he did not see the epigastric artery at all, while in that preceding it he saw it and the accompanying vein, like the embroidered lines on the back of a glove, and pushed them inside and upward. The superficial or external epigastric was cut and temporarily compressed with a holding-forceps in every case. He did not twist or tie a single vessel. The external incision did not extend down to the spine of the pubis, but ended above it. He had made the incision rather too near to Poupart's ligament, which, in his last operation, necessitated the extirpation of a large inguinal gland. He thinks it best to keep even more than one inch above the ligament. The peritonæum separated in the first two cases as easily as a rabbit is skinned. The pulsating vessel, which he felt before incising the vagina in his first case, was felt running in the direction of a prolonged radius from the os uteri outward. He made his incision in front of it, but is not sure if he tore it, as it may have staid intact in the posterior part of the vagina. He introduced his right hand and cut with the left. He cut in a direction parallel to the ilio-pectineal line. He estimates the distance from the utero-vaginal junction at scarcely half an inch in the centre, but greater toward the symphysis and the rectum. The incision was just long enough to admit the end of both fore-fingers. He introduced them perpendicularly to the incision, and applied the force in the direction of the vaginal axis. This gave a transverse rent, which he extended by applying his fingers in the same way, in different places, nearer to the symphysis, and then nearer to the sacrum; thus making a rent that he saw distinctly in his first two operations, but not in the third, on account of the deformity of the patient, and the disturbance caused in the tissues by previous inflammation. It was ragged, but had no branches; it was simple, not stellate, and about three inches long. He was surprised at the facility with which the wall tore. On account of the elasticity of the tissue the hand entered easily through this opening without tearing it more. In his second case he carefully examined the vaginal rent after delivery, looking for vessels, and he is positive that it was a simple transverse rent. On account of this he doubts if it is possible to perform the operation on the left side, as the distance from the rectum to the bladder is smaller on this side than on the right. He did not see nor feel the large iliac vessels, which were covered by the uterus.

The indication seems to have been absolute in the first case, since not even craniotomy was thought practicable, on account of the narrowness of the pelvis, combined with the œdema of the genitals, although cephalotripsy is not mentioned. In the third case the indication was unquestionably an absolute one, on account of the great contraction of the pelvis. In the second it was only conditional; but the operation was justified by the experience from the patient's former deliveries, and her great desire to have a living child.

When Dr. Skene formulates as a general indication that gastro-elytrotomy should be "tried in place of craniotomy, when the life of the child could be saved by so doing," I think he goes too far. This operation being much more hazardous than cephalotripsy, cranioclasis, and decollation, under favorable circumstances, it ought only to take the place of operations by which the fœtus is broken up, if these operations, in the given case, would present particular difficulties, as in Dr. Thomas's second case. Under circumstances favorable for craniotomy or embryotomy, gastro-elytrotomy would only be justifiable in the hands of those who absolutely refuse to kill the fœtus, and who consequently either would expose the woman to greater danger by non-interfering, or by Cæsarean operation; but this is not good obstetric practice.

Apart from the regard to the greater safety to the mother in cases in which difficult embryotomy, in the wider sense, would be the alternative, gastro-elytrotomy may also be justifiable, like Cæsarean operation, if the woman is willing to undergo the operation, and great interests, such as the preservation of a dynasty, or the entailment of a large estate, etc., are at stake. Since it is less dangerous than Cæsarean section, it is even warrantable to let the interest of the child weigh more than when the latter operation is contemplated.

It is fortunate that the only man who, besides Dr. Thomas, has performed this operation since its reinvention, had never witnessed the experiments and the operation performed by the latter. By performing the operation three times, and once even under the most difficult circumstances, Dr. Skene has proved that it is fit to become the common property of the profession. What has succeeded in Brooklyn, at the hands of a man who had merely read Dr. Thomas's description of his operation performed in New York, may as well succeed in any other part of the civilized world, provided that he who undertakes it is capable of operating at all. According to the unanimous testimony of all who have tried it, it is not even a difficult operation. Ovariotomy, an operation in which the unforeseen plays a much greater part, and in which often the greatest difficulties are met with, has been performed successfully numbers of times by village doctors. How much more readily then may gastro-elytrotomy be undertaken, an operation that indeed is dangerous, but in which the danger is much less under the control of the skill of the operator! This must of course not be misconstrued as if I meant that anybody can do what Dr. Skene can do, who is a consummate surgeon. I only mean to say that *the operation in itself is not one of those that demand such skill that they necessarily can be performed only by few men.* There cannot be any serious difficulty in the first part of the operation, the abdominal incision and the separation of the peritonæum. The only delicate point, to cut the fascia without wounding the peritonæum, is not so difficult as to incise the hernial sac without injuring the gut, the first two being separated by cellular tissue and often fat, while the latter are in contact. The second part may be made comparatively safe by opening the vagina with the actual cautery and then tearing. If the rent extends into the bladder, experience has shown, in Dr. Thomas's second and Dr. Skene's third case, that the fistula may heal by itself. If it does not, and the operator does not feel competent to close it, this part may be performed later by another. In order to ascertain, immediately after the operation, whether a fistula has been formed or not, I should advise to *inject lukewarm milk into the bladder,* which would enter the vagina, and would be easily recognized by its color. The rupture may then be united at once by a few stitches.

It is likewise fortunate that the few cases hitherto operated on in America have varied so much that they prove that the operation, with proper modifications, is practicable under different and even the most trying circumstances. The child has presented by the head, by the breech, by the arm and cord; there has been considerable narrowness of the pelvis and anchylosis of both hip-joints; and the woman has been delivered by version, extraction, and forceps.

It appears from the above that there is some difference between the statements of Dr. Thomas and Dr. Skene as to the important question of *the size and the shape of the vaginal rent.* But one thing has become entirely clear: both *applied the force in precisely the same direction*, although with different aim. It is, therefore, likely that the result was the same, and that the chief direction of the rent was one parallel to the brim of the pelvis. The chief direction of the muscular fibres favors the separation in this oblique line. I have tried myself to tear the vagina on the cadavers of non-pregnant women, after having made a small incision below and parallel to the ureter, and applying the force perpendicularly against the edges as in the operation. The opening became only longer, but retained its chiefly transverse direction, and did not tear at all in the direction in which the force was applied. If I made an incision in the direction of the longitudinal axis of the vagina, and tore, the rent retained indeed also this direction, but tore with less facility. Thus *it seems that we can decide the direction of the rent by the direction in which the incision is made.* Whether the rent will become stellate or not will, probably, to a great extent, depend upon the rapidity with which the fœtus is expelled or extracted. As it is impossible to tell in what direction, and to what extent, the branches might go, thereby endangering not only the bladder, that actually has been invaded, and the wound in which is of less consequence, but the ureter and the peritoneal cavity, which might prove fatal, it must be safer to try to avoid them.

Intimately allied to this question is that about the *possibility of operating on the left side.* We have seen that Baudelocque did so in both his cases, and was able to extract the fœtus through the wound in the second. But he *cut*, and could consequently give his incision so oblique a direction that he obtained room enough; but cutting is so hazardous that it has to be avoided in future, and the question is then if tearing will give as good results on the left side as on the right. It appears likely from my experiments, but it has yet to be proved in practice. I shall hereafter show that there is plenty of room, although the rectum lies in this side of the body. Dr. Thomas says that his last patient will almost surely return within a year,[1] and that he would repeat the operation. He would then have an opportunity to examine this important question on the living subject. I would also call to this point the special attention of those who may be fortunate enough to have at their disposal the body of a woman who has died at term. *Let them by all means try the operation on the left side, and cut below and parallel to the ureter and the line of connection between the bladder and the vagina* (*see* Fig. 2), *but not more than absolutely necessary to introduce their two fingers, and then tear.* This is the point that, more than any other, needs investigation now; the feasibility of the operation on the right side having been put beyond a question by the success of Drs. Thomas and Skene.[2]

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[1] *L. c.*, p. 245.

[2] I have just received Masson's "Thèse: De la Gastro-élytrotomie," Argenteuil, 1878, which contains (page 48) the report of an operation made *on the cadaver*, April 12, 1877, by Budin and Thévenot. They operated indeed on the left side, and extracted a rather large child with great facility, and the following dissection showed that the peritonæum, as well as the bladder and the rectum, was intact. They found, like their predecessors, that it was easy to detach the peritonæum, and reach the vagina. Two fingers of the left hand were introduced into the vaginal canal, and fixed a little in front of (or below) the scarcely perceptible ring formed by the fully dilated os uteri. They made the incision between these two fingers separated from each other. The vaginal wall seemed so thick that the operator for a moment questioned if he did not incise the uterus. The incision was extended a little forward and backward, in order to give passage to the hand and the child. This, as well as Baudelocque's second case, gives good hope of the feasibility of the operation even on the left side; but as they made the whole opening by incision, we cannot draw any positive conclusion as to tearing.

Name.

When we look in Dunglison's "Dictionary,"[1] under the head of Gastro-elytrotomia, we should think that it is a very common operation, since it bears no fewer than five names—*Gastroëlytrotomia*, *gastrelytrotomia*, *gastrocolpotomia*, *laparocolpotomia*, *laparoëlytrotomia*—but this can only be regarded as a display of philological scholarship. When we take the thing historically, it looks a little different. The operation was called by its first inventor, Ritgen, in 1820, *Bauchscheidenschnitt*, which, Grecized, would be either *gastro-elytrotomy* or *laparo-elytrotomy*. Baudelocque, its second inventor, called it *gastro-élytrotomie* in 1823, and in his second publication, in 1844, *élytrotomie*. Dr. Thomas, its last inventor, called it *gastro-elytrotomy* in his first paper (1870), and so did Dr. Skene; but in his last paper (1878), Dr. Thomas called it *laparo-elytrotomy*, and substituted this word for gastro-elytrotomy in reproducing the earlier publications.

The whole question is of little account, and Dr. Thomas has certainly, more than any other living man, the right to name the child. From historical grounds, it would be right to keep the name given by Ritgen; but as it is German, it has to be translated, and may be translated in both ways. As one of the two was used originally by Baudelocque, and later by Dr. Thomas himself, it seems to me to be preferable, so much more so as there cannot be said anything against it. *Γαστὴρ* signifies as well *abdomen* as *stomach*. *Gastrotomy* signifies indeed the opening of the stomach, while *laparotomy* is the opening of the belly (λαπάρα, properly the *flank*, the soft part between the ribs and the iliac crest); but as a term designating an incision through the stomach and the vagina would be meaningless, and as *gastro-hysterotomy* is much more used than *laparo-hysterotomy* for Cæsarean section, it seems better to call its substitute *gastro-elytrotomy*.

Statistics, Dangers, Indications, and Contra-indications.

There can of course not be spoken of any statistics for the first period. The operation was in two cases given up, and

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[1] Robley Dunglison, "Dictionary of Medical Science," Philadelphia, 1874.

Cæsarean section performed, resulting for the mother in death from hæmorrhage. In Ritgen's case, the child survived; in Baudelocque's it was dead. The operation was only performed once—the mother died from peritonitis—the child had died in consequence of the mother's eclampsia. The same condition, besides a defective *modus operandi*, may have exercised some influence on the result for the mother.

During the second period, five operations have been performed—four of the children were born alive, and three of the mothers are still living. But the record is still much better, when we remember that the fifth child had had its head perforated before the operation, and that both of the mothers who were lost were in a dying condition when it was undertaken.

Of the children, one died shortly after birth, being only a seven months' deformed fœtus; another after eighteen days, from want of care.

This result is not only most remarkable in a dangerous operation undertaken in the gravest cases of obstetric practice, but it becomes still more so when we compare it with the results of *Cæsarean section*. Of course nobody can foresee what experience will show to be the real statistics of gastro-elytrotomy when it has been performed often enough to exclude the influence of chance. It is not likely that the result will continue so good as it has been in the five operations hitherto performed according to Dr. Thomas's method. But in order to know if it is right or wrong to try it, we must consider the result so far obtained. The statistics of gastro-elytrotomy have the great advantage of being complete, while others regarding operations performed many times are based on literary sources in which successes are more frequently reported than failures. Thus all general statistics published on Cæsarean section are entirely fallacious, although, even as they are, they show the great danger of the operation. The most recent collection of the kind, that of Mayer, shows in 1,605 women a mortality of fifty-four per cent.; the same figure was obtained by Michaelis, while Kayser even found sixty-two per cent.[1] Dr. Robert P. Harris, of

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[1] Spiegelberg, "Geburtshülfe," Lahr, 1878, p. 852.

Philadelphia,[1] has gathered eighty-nine operations performed in the United States. Of the mothers thirty-eight lived and fifty-one died, or 57.3 per cent. Of the children forty-four were born alive, thirty-eight continued living some time, forty-seven were born dead, i. e., 51.6 per cent. The author insists justly on the comparatively favorable results obtained when the operation is performed within twenty-four hours after the commencement of labor, but even under these circumstances the results are inferior to those hitherto obtained by gastro-elytrotomy. If we take more limited localities, where it is easier to ascertain the results of Cæsarean section, the report is by far darker. Joulin[2] states that it has been performed sixty-seven times in Paris since the sixteenth century, and six women only escaped death. The last successful operation was performed by Lauvergeat in 1787. *During this century twenty-six operations have been performed without a single success.* Späth[3] says that there has not been a single case in the Lying-in Asylum of Vienna, during this century, in which the mother survived. Stadfeldt[4] has collected the cases reported in the three Scandinavian countries during the last twenty-five years. They were—for Sweden five, for Norway ten, for Denmark four. *Of the nineteen women only one survived.* Of the children six were dead before the operation; of the remaining thirteen eleven were born alive, and ten continued to live for some length of time. In New York and its suburbs there has only been one operation resulting in the survival of both mother and child, since the incorporation of "Nieuw Amsterdam" in 1621.[5]

It has often been said that the experience gained in ovariotomy would render the results of Cæsarean section better, but the prediction is yet to be fulfilled. Späth makes the above statement in reporting four cases operated on by himself, which all proved fatal. Ovariotomy has been steadily performed in the Scandinavian countries these last fifteen years, with very fair results, and we have just seen what has been obtained in Cæsarean section in those parts. Spiegelberg, who has only operated after ovariotomy had become a common operation, has performed Cæsarean section five times, and never succeeded.[1]

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[1] *American Journal of the Medical Sciences*, April, 1878, vol. cl., pp. 336–342; July, 1878, vol. cli., pp. 69–76.

[2] Joulin, "Traité complet d'Accouchement," Paris, 1867, p. 1092.

[3] *Wiener med. Wochenschrift*, January 26, 1878.

[4] Stadfeldt, "Det mekaniske Misforhold under Födselen" (The Mechanical Disproportion in Childbirth), Copenhagen, Denmark, 1872, p. 156.

[5] Thomas, "Comparison of the Results of Cæsarean Section and Laparo-elytrotomy in New York," New York Medical Journal, May, 1878.

Even if we take the crude facts of the six only operations of gastro-elytrotomy ever performed, and not even make any allowance for a perforated head, we have for the mothers three recoveries, three deaths, or 50 per cent.; for the children, four born alive, two dead, or 33 per cent. Even these entirely unjust figures compare favorably with those of Cæsarean section; and while the first are complete, the latter are utterly incomplete. Thus even statistics ought to engage obstetricians to give gastro-elytrotomy a fair trial. But the number is so small that the proportions may be altogether changed by a single new case. Let us therefore compare the operations themselves.

The first step, the incision through the abdominal wall to the peritonæum, is identical in both as to danger. The second step in gastro-elytrotomy, the separation of the peritonæum, is, by all who have tried it on the woman at the end of pregnancy, declared to be easy. I have myself found it very easy on the cadavers of non-pregnant women. The third step, the incision of the vagina, may be made almost safe by using cauterization and tearing instead of cutting, and has even been performed in the latter way without causing hæmorrhage. In the vagina there are comparatively small vessels which may bleed or may not, and which in the last six operations out of eight, which are all those in which the operation has been at all attempted, in fact have not bled. Should they do so, there would still be a fair chance that the hæmorrhage would stop after delivery, as it did in Ritgen's case, or might be controlled by ligature, temporary compression, the tampon, the actual cautery, or styptics. In the body of the uterus, on the contrary, there is the certainty of cutting the large sinuses, besides the additional possibility of encountering the placenta.

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[1] Spiegelberg, *l. c.*, p. 853.

As to *primary hæmorrhage*, then, the danger is much greater in Cæsarean section than in gastro-elytrotomy. The fourth step, the extraction of the child, has proved easy in all cases excepting one, in which there was great deformity, and even then the difficulty was overcome. In Cæsarean section this step is sometimes rendered very difficult and dangerous to the child, by the contraction of the womb around its neck. The fifth period comprises all the time from delivery to recovery or death. This is the most dangerous period in gastro-elytrotomy, but even here the dangers are less than in Cæsarean section. The peritoneal cavity not being opened, the patient is less likely to die from *shock*. *Incarceration of intestines*, which may occur in Cæsarean section, is excluded in its rival. *Metritis* is not more likely to occur in gastro-elytrotomy than in any other difficult labor, and is of course infinitely less likely to follow than in an operation by which a large wound is made through the wall of the uterus. *Peritonitis* may indeed occur, as it did in Baudelocque's case; but, the peritoneal cavity remaining intact, it is much less likely to occur than in Cæsarean section, in which the cavity is opened to a large extent, and the membrane wounded by two large incisions. A necessary sequel of gastro-elytrotomy is *cellulitis*, but this is in its nature not so fatal as peritonitis. *Septicæmia* is a danger common to both; but while in Cæsarean section, besides originating in the wounds, it may be the consequence of blood being decomposed in the peritoneal cavity after the operation, in gastro-elytrotomy the latter danger does not exist, and the whole wound is accessible to thorough disinfection. *Secondary hæmorrhage* may occur in gastro-elytrotomy, but would probably be controllable by ligature, styptics, or tampon; in Cæsarean section it occurs often on account of the relaxation of the uterus, and is fatal.

Thus the *a priori* argument, as well as the results hitherto obtained, are in favor of the new operation.

The same may be said in regard to the new modification of Cæsarean section, by which the whole supra-vaginal uterus is extirpated, as done by Porro, Späth, C. Braun, and P. Müller.[1]

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[1] *Centralblatt für Gynäkologie*, 1878, No. 5, vol. ii., p. 98.

Dr. Thomas has only proposed gastro-elytrotomy as a substitute for Cæsarean section, and declined to discuss it in relation to embryulcia in the New York Academy of Medicine. The operation is much too new to enable us to have even an approximate idea of the fatality inherent in it. Only when this is known will it be time to give exact rules as to when it is indicated. As yet we can only point out when it ought to be *tried.* Now, Dr. Parry,[1] in a paper on "The Comparative Merits of Craniotomy and the Cæsarean Section, in Pelves with a Conjugate Diameter of Two and a Half Inches or less," has shown that, in the hands of the most skillful operators, craniotomy performed under these circumstances gives no better results than Cæsarean operation. He has tabulated 70 cases, of which 26, or $37\frac{1}{7}$ per cent., were fatal. Dr. Harris[2] has grouped together those of his cases of Cæsarean section that had occurred in cities and large towns, where they may be supposed to have had similar advantages as to skillful treatment. They number thirty-two, with a saving of twenty women and sixteen children, i. e., the mortality among the mothers was $37\frac{1}{2}$ per cent., and among the children 50 per cent. Thus the mortality among the women upon whom craniotomy was performed was almost exactly the same as when Cæsarean section was performed; and while in the former all the children were sacrificed, in the latter fifty per cent. were saved. Under these circumstances it would therefore also be warrantable to try gastro-elytrotomy instead of *craniotomy.*

Bad cases of *embryotomy*, especially those in which it would become necessary to take away large parts, such as the liver and the lungs, will be likely to prove much more dangerous to the mother than gastro-elytrotomy, apart from the sacrifice of the fœtus. Thus the operation may be undertaken even when the child is dead, and to the mother's sole benefit.

After having pointed out cases in which the operation ought to be tried, we may also call attention to circumstances in which it would be contraindicated. The operation *cannot be repeated on the same side*, as it would be impossible to separate the peritonæum, and lift the vagina. When the *head is*

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[1] *American Journal of Obstetrics*, 1872, vol. v., p. 644.

[2] *American Journal of the Medical Sciences*, April, 1878, p. 323.

wedged into the pelvis, so that it cannot be pushed up, the incision of the vagina becomes impossible. If some solid *tumor*, for instance a fibroid, fills up the vagina, the same is the case. If the *obstruction* takes place *in the uterus* itself, as in cases of fibroid or cancer, the operation is of course contraindicated; likewise in cases of *atresia* or *coarctation of the vagina*, because this organ would not be distensible enough.

ANATOMY.

It is not my intention to give a description of all the parts interfered with in gastro-elytrotomy, but it may be well to recall certain points of the regional anatomy, and to add certain facts that will in vain be sought in treatises on anatomy. I think the simplest way will be to treat the subject exactly in the same order as the operation is performed.

1. ABDOMINAL INCISION.—By beginning the incision one inch and three-quarters above and outside of the spine of the pubis,[1] we avoid the round ligament and the epigastric artery.

During the incision of the skin the *external epigastric* or *superficial abdominal artery* is severed. It is a small branch that starts from the femoral an inch or less below Poupart's ligament, and runs in front of it in the subcutaneous cellular tissue up to the umbilicus.

The *external oblique muscle* is aponeurotic throughout the incision except just above the anterior superior spine of the ilium, where the fleshy part may be reached.

The fibres of the *internal oblique* run almost horizontally in this locality; those of the *transversalis* descend a little. These two muscles are fleshy in the greater part of the wound, but aponeurotic toward its inner extremity.

The *rectus muscle* is not interfered with.

The *transversalis fascia* is rather thick and dense in this locality. It is separated from the underlying *peritonæum* by a layer of areolar tissue in which often is found a deposit of fat. In the pregnant state this tissue becomes much looser still than in the non-pregnant, so that it allows the fascia and the peritonæum to be separated with great facility.

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[1] This is the term by which English and French anatomists (Gray, Sappey) designate the small protuberance in which the ilio-pectineal line ends inward and forward, while German anatomists (Holstein, Krause) call it *tuberculum pubis*. Holstein uses *spina pubis* for designating the *anterior* border of the pubis.

The *epigastric artery* starts from the anterior and internal circumference of the external iliac, one-quarter of an inch above Poupart's ligament, runs between the transversalis fascia and the peritonæum downward, forward, and inward, about half an inch, to the ligament, turns here upward and inward, passes in front of the round ligament, inside of the internal abdominal ring, behind the inguinal canal, outside of the internal inguinal fossa. Next it passes behind the posterior layer of the sheath of the rectus muscle, and enters finally the muscle itself. It crosses the round ligament at right angles. Generally it will not be reached by the incision; but since Dr. Thomas cut off a protruding piece of the ligament in his second case, he came in close proximity to the artery, and Dr. Skene once laid it bare without injuring it.

The circumflex iliac artery starts from the external iliac, opposite or a little below the epigastric, runs between the peritonæum and Poupart's ligament to the anterior superior spine of the ilium, and continues its course inside the crest. Thus this artery does not come under the knife; but in separating the peritonæum it will be between the back of the fingers and the ligament. It is a vessel of small calibre, that has not even been noticed by the operators.

2. LIFTING OF THE PERITONÆUM.—Beyond Poupart's ligament the transversalis fascia is continued as the *iliac fascia*. It adheres in front to the peritonæum by exceedingly loose areolar tissue. It covers the *internal iliac* and *psoas muscles*, between which the *crural nerve* is situated. At the inside of the psoas muscle, between the peritonæum and the fascia, lies the *external iliac artery*, extending from the upper end of the sacro-iliac articulation to Poupart's ligament. It has the corresponding vein on its inner side throughout on the left side of the body, and during the greatest part of its course on the right side, but in the uppermost part on the right side the vein lies outside the artery and crosses behind it.

The internal iliac or hypogastric artery runs, from the point where it separates from the external, forward and downward, and then it dips perpendicularly into the excavation of the pelvis, in front of the sacro-iliac articulation. It is only from three-quarters of an inch to one inch and a half (2–4 centimetres) long (Sappey[1]), accordingly not favorable for ligature. The corresponding *vein* runs behind it and inside of it.

3. Vaginal Incision.—First of all it must be remembered that the operation is only performed toward the end of pregnancy and when the pelvis is narrow. *Consequently the whole uterus with the fœtus is above the pelvic brim.* The *vagina* becomes so enlarged during pregnancy that, although it is drawn up to the brim by the ascending uterus, it forms large folds in order to be large enough to give passage to the child. Its wall becomes thick, but its tissue very loose, so that, although highly dilatable in the unimpregnated state even, it becomes still more so during pregnancy. The same is the case with the areolar tissue that binds it to the surrounding parts. Thus the whole organ may be lifted more or less considerably out of the pelvis and the operation performed above the pelvic brim. Even in the unimpregnated state of women who have borne children, it can easily be lifted a couple of inches up from the position it holds by gravity. The vagina has a thin external layer of cellulo-fibrous tissue interspersed with elastic fibres. The bulk of it is formed of muscular fibres spreading like a fan from the region of the sacro-iliac articulation above and the pubis below, as shown by Rouget.[2] When a small incision is made parallel to the ureter and torn, it keeps the same direction. Innermost is the mucous membrane.

The vagina is rich in vessels. On either side comes a branch called the *vaginal artery*, directly from the hypogastric. Besides, the trunk of the *uterine* artery runs in the upper fourth of its borders up toward the uterus, sending down a branch along the border to anastomose with the first.

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[1] Sappey, "Traité d'Anatomie descriptive," vol. i., part 2, p. 472.

[2] Courty, "Maladies de l'Uterus," Paris, 1866, p. 59.

Other arterial branches are derived from the *inferior vesical, the internal pudic*, and the *hæmorrhoidal arteries.*

The *veins* accompany the arteries, and form a pretty close venous network all over the walls, but are especially numerous at both extremities of the canal. On either side of the upper end of the vagina is found the *utero-vaginal plexus*, which receives the blood from the *vaginal plexus* below and pours it into the *uterine vein* or veins above.

This disposition of the vessels, apart from other considerations, makes it desirable to make the vaginal incision as low down as possible.

The relations to other organs are of the greatest importance. Behind the vagina is *Douglas's pouch.* This part of the peritoneal cavity varies somewhat in depth; generally it descends seven-eighths to one inch (twelve to fifteen millimetres) on the vagina; sometimes it scarcely touches it, but in other individuals it is in contact with it to the extent of one inch and a quarter (three centimetres) below the uterine junction.[1]

Below the *cul-de-sac* the vagina is in contact with the *rectum*, separated from it by a fascia descending from the pelvic fascia and loose cellular tissue.

The antero-superior surface of the vagina is, in its upper part, bound by loose connective tissue to the *bladder* on a surface that has the shape of a heart. In the lower or anterior part the boundary line of this surface runs parallel to and a little outside of the *trigonum vesicale.* In the upper part it follows the outline of the vagina, from which it passes over to the cervix. The distance from the internal opening of the urethra to the neck of the womb is one inch and a quarter (3.2 centimetres). The bladder extends five-eighths of an inch (1.5 centimetre) up on the cervix (*see* Fig. 2). It is very liable to be reached by the vaginal rent, if the latter is made too high up or too horizontal. The lower part of the antero-superior wall carries in the middle line the *urethra.* In the uppermost part, a little outside of and behind the bladder, lies the *ureter.*

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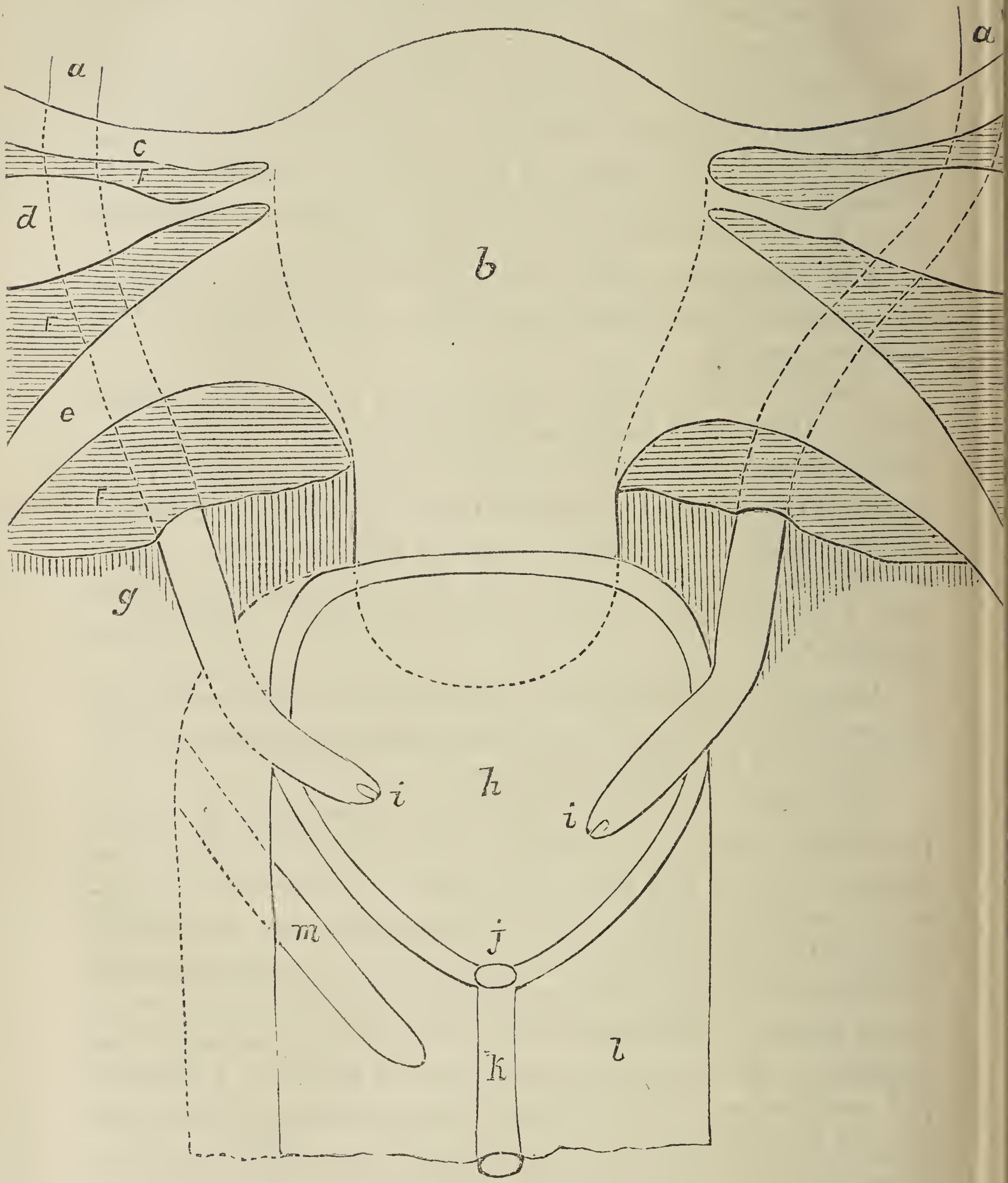
[1] Sappey, *l. c.*, vol. iii., p. 221.

FIG. 2.—Natural Size.



a, Ureters; *b*, uterus; *c*, Fallopian tube; *d*, ovary; *e*, round ligament; *F*, broad ligament; *g*, connective tissue; *h*, bladder (antero-superior part taken away to show attachments); *i*, vesical opening of ureter; *j*, inner aperture of urethra; *k*, urethra; *l*, vagina; *m*, incision and rent in gastro-elytrotomy.

The course of the ureters is not described with the accuracy needed for the science and practice of gastro-elytrotomy and other operations on the female pelvic organs in any anatomy

I know of. I have therefore examined it myself on the cadaver, and am thus enabled to correct or supplement what I have found in the works of Luschka,[1] Sappey,[2] Savage,[3] etc. The ureter does not lie in the broad ligaments. It does not keep the same direction on reaching the wall of the bladder, and it does not lie close up to the cervix.

The ureter is the continuation of the renal pelvis. It lies behind or under the peritonæum, imbedded in very loose connective tissue, and is much longer than the direct line between its two ends. The left ureter begins somewhat higher up than the right. The distance from the starting-point of the right ureter from the renal pelvis horizontally to the left ureter I have found to be two inches and a half (6.4 centimetres). From this point they go, excepting slight windings, parallel with one another down to the spot where they cross the iliac vessels, so that the distance between them at this latter point is likewise two and a half inches (6.4 centimetres). In this part of their passage they lie in front of the psoas muscle. The left ureter crosses the iliac vessels somewhat higher up than the right, the left lying in front of the lowest part of the common iliac artery, the right in front of the uppermost part of the external iliac artery. The right passes also in front of the external iliac vein, which here lies outside the artery. Consequently the left is also slightly nearer to the median line of the vertebral column. From this point they diverge, running downward, backward, and a little outward on the wall of the pelvis to a point near the *spina ischii*, at which point they are farthest separated from one another, namely, about three inches and a half (8.5 centimetres). The ureter lies outside the hypogastric artery. They run behind the broad ligaments down to the indicated point near the spina ischii, and bend then downward, forward, and considerably inward, so as to converge toward the bladder. They pass beneath the base of the broad ligaments, lying in the abundant cellular tissue found in this locality. They cross the cervix at some distance from behind, at an acute angle, so as to come in front of it and below it. They lie outside and above the anterior part of the side-wall of the vagina, if we will suppose such a thing to exist, on a spot as large as the tip of the finger. On reaching the wall of the bladder they turn rather sharply inward and go less downward, until they open with a small slit in the interior of the bladder, at the outer angle of the *trigonum vesicale.* From behind they are seen to be united by a kind of ridge forming the base of the trigonum (Fig. 3).

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[1] Luschka, "Die Anatomie des menschlichen Beckens," Tübingen, 1864, p. 384.

[2] Sappey, "Traité d'Anatomie," vol. iii., p. 494.

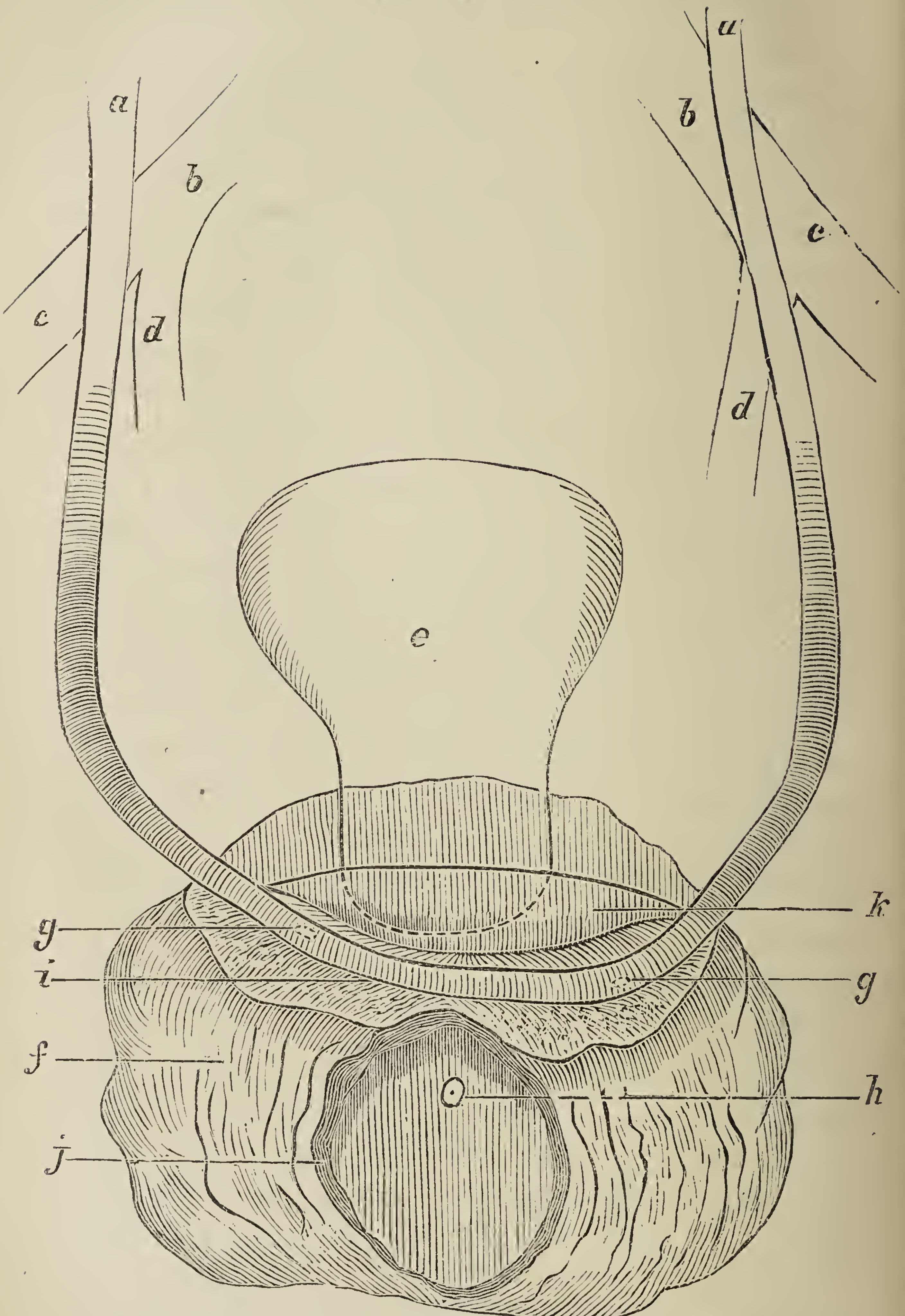
[3] Savage, "The Surgery, Surgical Pathology, and Surgical Anatomy of the Female Pelvic Organs," 2d ed., London, 1870. Pls. iv.–vii. and Pl. xii. (Pl. viii., Fig. 1, is correct.)

I found the following distances: From the ureter, horizontally, to the horn of the uterus (the starting-point of the ovarian ligament), right, three-quarters of an inch (1.9 centimetre), left, an inch and one-eighth (2.9 centimetres); from the ureter, horizontally, to the junction of the body and the neck of the womb, right, three-quarters of an inch (1.9 centimetre), left, five-eighths of an inch (1.5 centimetre); from the ureter to the nearest point of the vaginal portion on either side, half an inch (1.3 centimetre); from the ureter where it enters the wall of the bladder to the utero-vaginal junction, right, three-quarters of an inch (1.9 centimetre), left, five-eighths of an inch (1.5 centimetre); this point is on a level with the os uteri; from the opening into the cavity of the bladder to the vaginal portion, right, half an inch (1.3 centimetre), left, five-eighths of an inch (1.5 centimetre); between both ureters, where they reach the wall of the bladder, two inches (5 centimetres); between the two openings of the ureters into the cavity, one inch (2.5 centimetres); from the point where the ureter passes under the broad ligament to the point where it reaches the wall of the bladder, one inch and one-eighth (2.9 centimetres); the course of the ureter in the wall of the bladder, nine-sixteenths of an inch (1.4 centimetre); from the opening of the ureter into the cavity of the bladder to the centre of the anterior lip of the os, right, three-quarters of an inch (1.9 centimetre), left, one inch (2.5 centimetres); these openings lie below the level and considerably in front of the vaginal portion; from the internal opening of the urethra to the os uteri, one inch and a quarter (3.2 centimetres).

These measures are taken from the body of a woman about forty years old, who had borne children, and died from malarial fever and heart-disease. The abdominal organs were healthy. Most of the measures have been compared with those on two other bodies, and the differences are of no importance for our operation. They are represented in Fig. 2. If some mathematical spirit should find slight contradictions in the measures as stated above when the distance from one point to different others is indicated, or between the text and the diagram, it must be remembered that the parts measured are soft, elastic, and movable, so that they easily give way a little even when great care is taken to steady them. As to the diagrams, I do not pretend to be a draughtsman, but I think that even an imperfect sketch may contribute to the understanding of the operation. All the measures are taken *in situ.* This is absolutely necessary, for the organs are so lax that, when examined after removal from the body, all the distances appear much larger than in the body; but this shows, on the other hand, that in operating we may obtain much more room than is shown on the diagrams. Thus I found on a fresh specimen I had removed from the body the following distances: From the ureter to the horn of the uterus, 6 centimetres (2⅜ inches); from the ureter to the junction of the body and the neck of the womb, 4.5 centimetres (1¾ inch); from the ureter to the vaginal portion, 2.5 centimetres (1 inch); from the point where the ureter enters the wall of the bladder to the vaginal portion, 2.0 centimetres (¾ inch); from the opening into the vesical cavity to the vaginal portion, 4.0 centimetres (1½ inch); between the ureters on a level with the os uteri, 7.0 centimetres (2¾ inches); on reaching the bladder, 6.0 centimetres (2⅜ inches); on opening into the cavity, 3.8 centimetres (1½ inch); the length of the ureter in contact with the vagina before entering the bladder, 2 centimetres (¾ inch); the length of its course in the vesical wall, right, 3.0 centimetres (1⅛ inch); left, 2.5 centimetres (1 inch).

Fig. 2 is somewhat theoretically constructed, that is to say, I have made the diagram with the measures actually

FIG. 3.—Natural Size.



Curve formed by the ureters and the base of *trigonum vesicale:* *a*, ureter; *b*, common iliac artery; *c*, external iliac artery; *d*, internal iliac artery; *e*, uterus (appendages cut off); *f*, bladder (dissected from uterus and roof of vagina, a little beyond the base of the *trigonum*); *g*, site of vesical aperture of ureter on the inside (not visible); *h*, vesical aperture of urethra; *i*, base of *trigonum*; *j*, incision in bladder; *k*, vagina.

taken on the body, putting them down on the paper without any consideration of foreshortening. Fig. 3 has been drawn exactly as I saw the organ in another subject, fifty-seven years of age, with an atrophic uterus. I laid the ureters bare from the place where they cross the iliac vessels to the place where they pass under the broad ligaments. Next I dissected the bladder from the uterine neck and upper part of the vagina, and drew it forward in order to show the curve formed by the ureters and the base of the *trigonum vesicale*. Then I took away the broad ligaments and cut the bladder perpendicularly in the median line, in order to measure the distances between the vesical apertures of the ureters and the urethra. Finally, I pushed a needle through the vaginal wall at the base of the *trigonum*, in order to ascertain its distance from the vaginal portion. After removal of the uterus and the vagina, the needle was found to have penetrated just below the os. The sketch is in natural size. The measures found in this case were: Between the ureters where they cross the iliac vessels, 6.7 centimetres ($2\frac{5}{8}$ inches); where they bend inward at the bottom of the pelvis, 8.5 centimetres ($3\frac{3}{8}$ inches); from the vesical aperture of the urethra to the point where the ureters bend inward, 5.0 centimetres (2 inches) on either side; from the point where the ureters bend inward to the point where they cross the iliac vessels, right, 5.5 centimetres ($2\frac{1}{8}$ inches), left, 6.5 centimetres ($2\frac{1}{2}$ inches); the *trigonum vesicale*, right side, 3.0 centimetres ($1\frac{1}{8}$ inch), left, 2.5 centimetres (1 inch), base, 3.7 centimetres ($1\frac{1}{2}$ inch); from urethra to base, 2.5 centimetres (1 inch); in all four bodies I have examined I have found the same asymmetry of the trigonum, the left ureter opening nearer to the urethra than the right; but that the left ureter in this case is more distant from the cervix than the right seems to be an exception; the length of the uterus, 5.7 centimetres ($2\frac{1}{4}$ inches); the width at the fundus, 4.9 centimetres (2 inches); at the os internum, 2.7 centimetres ($1\frac{1}{16}$ inch); midway between os internum and externum, 2.9 centimetres ($1\frac{1}{8}$ inch); from the bladder to the rectum, rectilinear measure, left, 6.0 centimetres ($2\frac{3}{8}$ inches), right, 8.5 centimetres ($3\frac{3}{8}$ inches); along the wall of the pelvis, left, 9.5 centimetres ($3\frac{3}{4}$ inches), right, 10 centimetres (4 inches); from the vesical aperture of the urethra to the rectum following the brim of the pelvis, left, 15.5 centimetres (6 inches), right, 21.0 centimetres (8¼ inches).

The ureter lying behind and below, not in, the broad ligaments, it retains its place when the uterus rises during pregnancy.

Since the ureter only touches the vagina on a small spot in the upper and anterior corner, if I am allowed to use such an expression, and at some distance from the uterus, we can understand how it is possible to extirpate this organ without injuring the ureter.[1]

The description will also serve to explain the occurrence of fistulous communications between the ureter and the cervix, or the vagina.

In order to avoid the ureter and the bladder, the incision of the vagina should be made nearly an inch and a half (3.8 centimetres) below the uterus, and in a direction parallel to the ureter and the boundary line between the bladder and the vagina (Fig. 2, *m*). If this incision appears so small that it would be impossible to extract a child through it, I will only state that on the vagina of an unimpregnated woman I have been able to make it two inches long. When we now bear in mind the enormously enlarged proportions we find when we explore a woman at the end of the first stage of labor, I have no doubt that it may be made twice that length. We feel the vagina as wide as the pelvic brim, and the above figures show, then, that there is ample room on either side between the urethra and the rectum. The tissues incised being extremely elastic, the child may be extracted through such an opening.

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[1] After I had finished my studies concerning the anatomy of gastro-elytrotomy, I became acquainted with Freund's description of his new method of extirpating the uterus (*Volkmann's klinische Vorträge*, No. 133, Leipsic, 1878). In this he refers to a description of the female ureters given by himself in the *Berliner klinische Wochenschrift*, 1869, No. 47. This excellent gynecologist has felt the same dissatisfaction with the description given by anatomists which has prompted me to investigate the subject. I am glad to see that in most points we agree as to the course of the ureters. Thus my description may serve to corroborate his, and *vice versa*. When he gives the distance from the ureter to the os uteri as 4 centimetres or more on the right side, and 2.5—3.4 centimetres on the left, and that between the ureters on a level with the external orifice of the womb as 7.9—9.8 centimetres, I feel inclined to think that he has measured on specimens removed from the body, for, as stated above, the distances appear much larger when these lax parts are taken out and spread on the table.

Operation.

The bowels having been emptied by an aperient and a copious enema, and the os having been fully dilated by Barnes's water-bags, if it is not so already, the patient is placed on her back, on a long, narrow table covered with a mattress or quilts, rubber or oilcloth, and a sheet. The pelvis is well elevated on a hard cushion, the head and shoulders slightly raised by means of pillows, the legs stretched out. If, from some cause, it has been impossible to dilate the os fully by Barnes's dilators, it is now done by the fingers, or if that is impossible too, it is dilated later through the abdominal wound. The patient is anæsthetized. Since disinfection cannot be carried out strictly, and since its administration would give some additional trouble, it is scarcely necessary to operate under disinfectant spray.

The operator takes his place at the right side of the patient. Besides one who administers the anæsthetic, four assistants are needed; one on either side of the operator, and two in front of him. The first assistant, standing at the left of the patient's chest, lays his flat hands under the umbilicus and draws the uterus upward and toward the left, thereby putting the skin in the right iliac region on the stretch. Counter-extension may be made by the assistant placed at the right of the operator. A slightly curved incision is made through the skin from a point one and three-quarter inches (4.5 centimetres) above and outside the spine of the pubis, parallel to, and an inch above, Poupart's ligament, to a point an inch above the anterior superior spine of the ilium. This incision may also be made in the opposite direction from without inward. By a few touches with the edge of the knife the external oblique muscle is laid bare, and spouting branches of the superficial epigastric artery secured by holding-forceps. The abdominal muscles are cut to the same extent, layer by layer, the external oblique, the internal oblique, and the transversalis, the first of which is aponeurotic. The transversalis fascia is very carefully hooked up with a fine tenaculum, and the knife carried horizontally, so as to make a small opening in it, avoiding the peritonæum that lies beneath it, separated from it by loose areolar tissue, and sometimes fat. A director is introduced through the opening and pushed between the fascia and the peritonæum toward the inner and the outer angle of the wound, and the fascia is cut. The best instrument for this purpose is Key's hernia director, the one which Spencer Wells uses when incising the peritonæum in ovariotomy. It is firm, a quarter of an inch (6 millimetres) broad, slightly curved on the flat, well-rounded at the end, and has on its concave side a groove that stops a quarter of an inch (6 millimetres) from the point of the instrument. Next, the operator places the pulp of his fingers on the peritonæum, separating it from the transversalis and iliac fasciæ, until he reaches the vaginal wall. The second assistant, placed at the left of the operator, holds the peritonæum and intestines, applying a fine, warm napkin under his hands, in order to be sure not to let them slip. The first assistant draws the uterus vigorously upward and toward the left, in order to expose the deeper part of the vaginal wall on the right side. A female silver catheter is introduced into the bladder by the third assistant, placed at the left hip of the patient and held in the known direction of the boundary line between the bladder and the vagina, below the ureter on the side on which the operation is being performed. A blunt wooden instrument, something like the obturator of a cylindrical speculum, only longer, is introduced into the vagina and applied above the linea ileo-pectinea, raising the vaginal wall as much as possible into the abdominal wound. An incision is made parallel to the ileo-pectineal line and the catheter felt in the bladder, as far below the uterus as possible, in order to avoid the ureter and Douglas's pouch, and incise where there are fewest vessels, cutting down on the obturator with Paquelin's thermocautery, the galvano-caustic knife, or simply cautery-irons (table-knives), only heated to *red* heat. The surrounding parts are protected by the application of wet compresses around the place to be cauterized. The incision made by the cautery is extended forward toward the symphysis and backward toward the promontory by placing the pulp of both index fingers perpendicularly on the edges, and applying the force in different places in the direction of the os uteri and the ileo-pectineal line, so as to *tear* the vaginal wall as far forward as is deemed safe in regard to the bladder and the urethra, the locality of which organs is ascertained by feeling the catheter held by the assistant, and as far backward as the wound in the abdomen will allow. Now the catheter is withdrawn, the membranes ruptured if the liquor amnii has not escaped before, the uterus tilted as much as possible to the opposite side, and the os drawn with the forefinger into the iliac fossa.

The operator draws the child through the double wound either by simple extraction, or after turning, or by applying the forceps, according to the presentation and other particular circumstances. The placenta is expelled by compressing the uterus, and withdrawn through the wound.

If bleeding occurs, the operator tries to check it by applying ligatures through the abdominal wound, holding-forceps, styptics, or cauteries, using a large wooden tubular speculum; or a Sims speculum may perhaps give easier access to the bleeding vessel than anything else. If it be impossible to check the hæmorrhage, the vaginal wound must be firmly tamponed from below through the vulva and from the abdominal wound with cotton pledgets soaked in cold water and squeezed, and held *in situ* by broad straps of adhesive plaster round the abdomen, as after ovariotomy. Except in the last eventuality, the bladder is distended by injecting lukewarm milk in order to ascertain if this organ has been injured. If so, the fistula is immediately sewed with catgut, which need not be removed. The wound is cleaned by injecting a stream of lukewarm carbolized water (2 per cent.), or a solution of thymol (2 per thousand), from the vagina and from the abdominal wound. Next, the edges of the abdominal wound are brought together by interrupted sutures, and the lower part of the abdomen covered with borated or salicylated cotton, and surrounded by broad straps of adhesive plaster fastened to the hips, as in ovariotomy. A pledget of cotton soaked in carbolized oil (1:10) is applied in the entrance of the vagina.

After-Treatment.—The vagina and iliac fossa are syringed every two or three hours, and the plug in the vagina renewed. The nozzle of the syringe may be carried through the vaginal wound, but the injection ought to be made so carefully as not to interfere with the abdominal wound, in which union by the first intention ought to be attempted. Bodily and mental rest is to be secured, light nourishment, such as milk, gruel, and beef-tea, given according to appetite, pain subdued by opium, which also will keep the bowels quiet for some days. As soon as the temperature rises, or tenderness on pressure appears, a couple of large ice-bags are suspended above the abdomen, so as to touch it without pressing too heavily upon it. Ten-grain doses of quinine, cool baths, or aspersion with cold water on Kibbee's fever cot,[1] may be needed. Meteorism is to be combated by tincture of nux vomica or capsicum (five drops every hour), by injections of oil of turpentine, sulphate of quinine (five grains every four hours, Spencer Wells[2]), or mint water (two ounces of the herb to a quart of water, Peaslee[3]), by large doses of subnitrate of bismuth (gr. xxx.–xl., Koeberlé), by the rectal tube, by puncture of the intestine, especially the transverse colon, or, as recently advised by Dr. Jenks, of Detroit, Michigan, by standing the patient on her head,[4] or by faradization (Wells[5]).

The *time* required for the performance of the operation will of course vary much according to circumstances, and will especially depend upon the occurrence or non-occurrence of hæmorrhage. Ritgen used a little less than an hour, including half an hour spent in waiting for labor pains, and the time occupied in performing Cæsarean section. Baudelocque's operation lasted one hour.[1] Dr. Thomas performed his last operation in thirty-five minutes. Dr. Skene used only respectively ten and fifteen minutes in his first two cases; the time employed in the last is not stated.

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[1] Thomas, "The Most Effectual Method for controlling the High Temperature after Ovariotomy," New York Medical Journal, August, 1878.

[2] Spencer Wells, "Diseases of the Ovaries," London, 1872, p. 388.

[3] Peaslee, "Ovarian Tumors," New York, 1872, p. 503.

[4] E. W. Jenks, "On the Postural Treatment of Tympanitis Intestinalis following Ovariotomy," *American Journal of Obstetrics*, July, 1878, vol. xi., p. 515.

[5] Wells, *l. c.*

As to the time required for recovery, it will to a great extent depend on the healing of the abdominal wound by first or by second intention. In Dr. Skene's second case both wounds were closed on the fourteenth day. In his third there remained at that time only a vesical fistula.

Conclusions.

1. Gastro-elytrotomy ought, when possible (*see* contraindications above), to be performed instead of Cæsarean section in all cases, and instead of operations by which the fœtus is broken up, when these would be particularly difficult, especially when the smallest diameter of the pelvis measures two inches and a half or less.
2. It does not require exceptional skill or rare instruments. It is, indeed, less difficult than ovariotomy and herniotomy.
3. Five assistants are desirable, and four indispensable, in order to carry out the above plan.[2]

Errata in the First Article: Page 341, fifth line from bottom, for "lacunæ," read "lacunar;" page 342, second line from bottom, for "1835," read "1825;" page 347, eighth line from bottom, for "1824," read "1825;" page 360, fourth line from bottom, for "vagina," read "bladder."

Art. II.—*The Use of Ipecacuanha in Labor.* By John H. Carriger, M.D., Knoxville, Tennessee.

Although ipecacuanha has now been in general use for about two centuries, it has as yet, so far as I know, had no one to set up for it, directly, claims to the properties of an oxytocic. Notwithstanding this fact, however, I believe a careful study of its influence upon the human economy will show that, under certain circumstances, it is both a potent and reliable uterine motor stimulant, capable of meeting important indications in certain cases, much better than any other agent yet brought to our knowledge.

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[1] "Elytrotomie," p. 24.

[2] Dr. Skene, in his second case, had only three assistants, but then no catheter was used.

We can find upon record no direct testimony in support of this view, but in the often-repeated admission of its great power over uterine hæmorrhage beyond what it exercises over other hæmorrhages, we believe there is fairly a concession to it of what we claim.

This power over uterine hæmorrhage is indeed very considerable, and is not due to astringency in any proper sense of the word, nor to sedation upon the heart and arteries, nor to its equalizing influence upon the circulation (as has been maintained by many), but to its power of cöordinating uterine action and stimulating tonic contraction.

This opinion has not been formed hastily from a few carelessly observed cases, but it is the slow and gradual outgrowth of observations now running through a period of several years; doubtingly received in the beginning as only a possibility, because in most cases of labor, in consequence of their liability to suddenness of change, there is great and almost insurmountable difficulty in determining whether a given remedy has or has not been the occasion of this change. Notwithstanding this difficulty, however, I believe it will at last be conceded that we have in ipecacuanha an oxytocic, potent, and safer than ergot for both mother and child, because it stimulates the uterus into a more nearly normal action, and at the same time facilitates dilatation of the rigid os, a circumstance making it useful in a large number of cases which would otherwise be slow and tedious, and in which the endurance of the patient is liable to become exhausted by prolonged and inefficient pains. In cases of this kind I have found it prompt in promoting dilatation, prompt in changing the character of the pains, when they were of the cutting, sawing, and inefficient kind, rendering them forcibly expulsive, and at the same time much more bearable than they had previously been, and thus hastening the period of convalescence and of safety.

On November 15, 1851, near Tazewell, Tennessee, I attended the first case of labor in which I administered ipecacuanha. It was to a muscular, well-developed patient, the picture of robust health, four or five hours in labor. On my arrival I found her making loud outcries from what she described as cutting, sawing pains in her back. The os uteri was undilated and rigid, pulse full and strong. It was just such a case as I had been taught the lancet ought to be used in. In the absence of my lancet I watched the case for over an hour; the os was still rigid and not larger than a silver dime. Two grains of pulverized ipecacuanha were now given. In about thirty minutes the cutting, grinding character of the pains had disappeared, and they had become forcibly expulsive, and were rapidly changing the condition of the contracted and rigid os. Two grains more of pulverized ipecacuanha were now given, and in an hour more a stout, healthy boy was born.

At the conclusion of this case I was not at all disposed to regard ipecacuanha as an oxytocic. I only saw in it a relaxant for the rigid os, with perhaps some coördinating power over the uterine expulsive effort. During the next few years I saw quite a number of similar cases—prompt dilatation of a rigid os, and delivery, following the use of one and two grain doses of ipecacuanha; but as yet it had not occurred to me that, while causing dilatation of the rigid os, and coördinating the uterine forces, it was also doing more than simply removing an obstacle to the termination of the labor.

On June 15, 1863, I was called to attend Mrs. C. C., aged thirty-seven, primipara; delicate; four miles west of Columbus, Georgia. Two hours in labor—pains forcible. Pelvis deformed at outside, not over two and three-fourth inches in ante-posterior diameter. Os uteri rigid and undilated, child evidently large. Believing natural delivery impossible, other assistance was immediately sent for. One hour later, the os still being rigid and undilated, two grains of the pulverized ipecacuanha was given. In thirty minutes there was full dilatation, and so great an increase of the expulsive efforts that the patient was urged to discontinue all voluntary bearing down, and half a grain of sulph. morph.

was at once administered, in order, if possible, to moderate the violence of the bearing-down effort—but it was all in vain; for in less than twenty minutes the pubic symphysis, with a sudden snap, parted, and immediately a stout, healthy boy, still enveloped in the membranes, was at once extruded into the world. Examined after birth, the bones of the head were found unusually firm, sutures closed and unyielding; posterior fontanelle closed; weight ten and one-half pounds.

Thus happily for both mother and child was terminated in less than four hours a labor at first believed to be impossible by the natural efforts; and the only drawback, after some weeks' quiet in bed, for the mother, is something of a persisting unsteadiness of gait, and very slight but appreciable mobility in the pubic symphysis.

Prior to this case, I had occasionally suspected that ipecacuanha was capable of doing more than simply causing quicker dilatation. In this case I was forcibly impressed with its apparent energy; and then, in a mental review of other cases of rigid os where I had resorted to its use, I was forced to believe that the quickening impulse it had imparted to the expulsive effort was not solely due to the dilatation of the previously rigid os uteri.

July 13, 1869.—Called to see Mrs. S. T., six miles west of Columbus, Georgia; age, 19; primipara; five hours in labor. Every ten or fifteen minutes complains of severe cutting pains in the back. Os rigid, not larger than a silver dime, first presentation. Gave at once two grains ipecacuanha. Half hour later, pains working well, and dilatation nearly complete; head fixed in a rather contracted superior strait; at the end of about thirty minutes more, under a violent and prolonged pain, it suddenly sprang forward, pressing forcibly upon a rigid perinæum. At this period the patient was urged to discontinue all voluntary efforts at bearing down. Half a grain of sulph. morph. was given, and the perinæum well supported during the next pain; but, unfortunately, the child was at once extruded, and the perinæum was considerably rent.

January 1, 1877.—Called to see Mrs. G. N., in the city of Knoxville, Tennessee. Primipara, six hours in labor, pains about every ten to fifteen minutes, mostly in the back. Os rigid, undilated. Gave ipecacuanha, two grains, at once. Thirty minutes later, finding little or no change, repeated the dose, and retired to take breakfast, leaving orders that I be called at once upon any increase in the pains. An hour later I was hastily summoned to find the child already born.

I might add case upon case, in which, during the past twenty years, I have thus used ipecacuanha at some period or other during the progress of labor. But, as the result following in all (but a single case) has been the same—a great lessening of the sufferings of the patient, and a shortening of the duration of labor—I will now mention a few of the particulars of the excepted case, and next proceed to collate a few of the opinions of medical writers, which, I believe, indirectly sustain the position that ipecacuanha is oxytocic in certain cases.

March 3, 1870.—Called to Mrs. H., seven miles southwest of Columbus, Georgia. Four hours in labor; pains every ten to fifteen minutes, mostly in the back. Os dilated to about size of a silver quarter, and rigid. An hour later, seeing no changes in the circumstances of the labor, gave ipecacuanha, two grains at once. Half an hour later, the dilatation being still incomplete, repeated the dose, from which some vomiting resulted, and, shortly, complete dilatation. In a little time the head of a medium-sized child was presenting in the inferior strait of a rather large and roomy pelvis, when suddenly all pains ceased, and did not return for over ten hours.

This patient, stating that her mother had been subject to similar delays in her labors, refused the use of forceps when her pains were leaving her, and in an hour or two was quietly sleeping.

N. Chapman, in "Elements of Therapeutics," Philadelphia edition, 1821, says of ipecacuanha in small doses, that "it is exceedingly important in hæmorrhages of every description . . . . though it is in uterine hæmorrhage that it displays its best powers. . . . The powers of small doses of ipecacuanha are frequently astonishing in checking uterine hæmorrhage. . . . It cannot be by its astringency that it causes this effect, as some have alleged, since the most powerful astringent will not do it . . . . nor by its antispasmodic powers, as Murray contends.

. . . . May it not operate by producing relaxation, thereby diminishing arterial action? . . . Yet to this hypothesis also there are obvious objections."

George B. Wood, "Therapeutics and Pharmacology," edition of 1856, on pages 437 and 438, vol. ii., speaking of ipecacuanha, says, "As a nauseating agent it has been much recommended for the hæmorrhages, especially in that from the uterus." Thinks the source of its benefit the depressed state of the pulse attendant on a state of nausea.

John Eberle's "Materia Medica and Therapeutics," Philadelphia, 1842, vol. i., pp. 142, 143, ascribing to it no astringent properties, after mentioning its beneficial influence in hæmoptysis, adds, "In uterine hæmorrhage it has been found still more decidedly beneficial than in other hæmorrhages." Bergius relates a violent case of uterine hæmorrhage which he successfully cured by giving one-half-grain doses of ipecacuanha every half hour.

Thomas D. Mitchell, "Materia Medica and Therapeutics," Philadelphia, 1850, says: "Menorrhagia, of high as well as low morbid action, has been treated successfully with ipecacuanha, by Dr. Osborne, of Dublin. He gave one scruple at bed-time, followed next morning by a saline cathartic. The discharge was promptly checked, and if it happened to return the same treatment was repeated."

M. Coffin first noticed this practice in the *Journal Général de Médecine*. He remarks that the discharge ceases almost immediately after the emetic action of the ipecacuanha.

Dr. Osborne states that this treatment (emetics of ipecacuanha) in menorrhagia has never yet failed in his hands. For this last statement see *American Journal of Medical Sciences*, Philadelphia, 1839, page 453; also *Braithwait*, No. 1, January to July, 1840, page 37, "Observations on the Use of Ipecacuanha in Internal Hæmorrhages." Dr. Osborne and Dr. Trenor have tried it in menorrhagia with equal benefit, and ever since that time, 1828, it seems to have maintained itself in the good opinion of numerous medical men.

Braithwait, July to January, 1845, page 136, states that John Higginbottom, in profuse uterine hæmorrhage, succeeded with it when ergot failed. In emetic doses he regarded it a restorative in cases of sinking, and reports its good effects in the last stages of cholera.

H. C. Wood, "Materia Medica and Therapeutics," Philadelphia, 1876, says "there is no doubt of the value of small doses in the sick stomach of pregnancy (one drop of the wine every hour in a teaspoonful of water) . . . . It has been given with asserted advantage to arrest flooding after childbirth."

The opinion so often repeated in our medical literature, that ipecacuanha has a power over uterine hæmorrhage, beyond its power over other hæmorrhages, naturally raises the inquiry whence has it this power, if it is not a uterine motor stimulant? Conceding that it is such a stimulant, at once we raise the inquiry then how far may it be given safely in case of rigid os uteri and perinæum, and by virtue of what property does it bring about dilatation of these organs?

In my answer to this I can only say that it appears to exercise a coördinating influence over that condition of the uterus in which we have irregular uterine action, and protracted, agonizing, and inefficient pains, wearying and harrassing, without producing any result: a condition which might for want of a better term be denominated stammering of the womb.

In cases of this kind I have seldom seen it fail to relieve the patient of much of her suffering, notwithstanding the evidences were very strong that the expulsive efforts of the womb were more than doubled, as indicated by the rapid changes in the circumstances of the labor. Usually in about thirty minutes after its administration the previously restless patient, from rolling and tossing, and making loud outcries, has become quiet, and with every pain appears to be making a determined effort to become rid of her burden, in a quiet way—the os dilating, the child descending, and the agony shortly over—and yet the labor not possessing any of the characters of an ergotized labor—the pains coming at regular intervals, as in cases of natural labor, succeeded by intervals of rest. While believing the dilating force in these cases to be the stimulated, regularly recurring, forcibly expulsive, physiological force, I do not feel prepared to say that ipecacuanha exercises no influence independently of its expulsive force. Its influence over the sick stomach of pregnancy (it has occurred to me) might in whole or in part be due to some power of causing dilatation of a too contracted os, as well as to its influence in diminishing the agonies of an irritable labor. In a very large number of cases of rigid and undilated os, where every pain, for hours previously to its administration, had been accompanied by loud outcries, and jactitation, and irritability of temper, it has rarely failed in a few minutes to bring quiet, and comfort, speedy dilatation of the rigid os, and regularly recurring and forcibly expulsive pains, an entire change in the character of the labor, and speedy termination.

Some eminent medical men regard it as stimulant and restorative in the latter stages of tuberculosis; by John Higginbottom it was found stimulant and restorative in the latter stages of cholera. These facts seem to indicate a general contractility under its use of the non-striated or fibrous tissues, a contraction of the capillaries (as well as the uterine fibrous tissues), and thence a suppression of the colliquative sweats.

Art. III.—*On the Structure and Growth of some Forms of Mildew.* By William Hassloch, M. D., of New York.

During researches in which I stained the corneas of dogs and cats with chloride of gold, many of my preparations became mouldy, and, as repeated application of the chloride produced well-marked characteristic violet coloration of the mildew, I succeeded in studying its intimate structure.

The application of one-half per cent. solution of chloride of gold, for from one to six hours, sufficed to stain the parasitic growth from a light-red violet to a dark blue. The preparations were mounted in the common way, in a mixture of distilled water with glycerine, 1 : 1, and remained unchanged for months.

With a magnifying power of 500, thallus-threads (mycelia), hyphæ, and conidia could be seen, as well as numerous branching chains of conidia, all united with mycelia. These formations appear finely granular. Many of the granules are not round, but look jagged and pointed; moreover, both the hyphæ and mycelia-threads show, on their periphery, accumulations of minute, generally dark violet, partly pediculated granules, to such an extent as to conceal, in some places, the contours of the plant. For greater magnification I used an immersion-lens of Tolles, with a power of 1,200 diameters, and immersion-lenses of Vérick, in Paris. With these the mycelia, mostly unchambered, show thin, dark-violet edges, and contain a large number of granules of different sizes, which, almost without exception, are united by fine, violet threads. This arrangement produces an exceedingly delicate, violet network in the interior of the mycelium-thread, the meshes of which are either uncolored or only slightly violet. The smallest granules are homogeneous, while the larger ones sometimes contain central spaces, vacuoles, which appear in the optical section as small rings. Occasionally larger vacuoles are seen within the mycelium, each surrounded by a wreath of violet granules. Not only are the majority of the granules connected with each other, but threads pass also from the wall of the mycelium to neighboring granules. Where hyphæ grow from the mycelium, the wall of the latter looks as if perforated, but its outer contour is continuous with that of the hyphæ.

The hyphæ, always of less diameter than the mycelia, are more finely granulated; but there is no doubt that their granules are also connected by exceedingly delicate threads, both among each other and the wall. The majority of the hyphæ are covered with fine granules, occasionally accumulating in groups, either attached with a broad base or by means of a minute stem. Sometimes such a little body, or such groups, may be seen connected by fine threads with granules in the interior of the hyphæ. Just as in the mycelium, we find also in the hyphæ a number of round or oval vacuoles, which, uncolored themselves, are surrounded by a violet outline or by a wreath of granules.

Many hyphæ terminate in spherical or oblong conidia. Often a second conidium is directly attached to the terminal one, or by means of an intervening hypha. From this may proceed again a hypha, ending in a conidium, and so on, frequently repeated.

The conidia are of two kinds, viz., thin-walled, the walls of which do not surpass those of the hyphæ; or thick-walled, with a relatively broad shell, interrupted only at the union with the hyphæ or an attached conidium. When two or more conidia are near together, that next to the hypha has usually thin walls, while the succeeding ones have markedly thicker walls. Both kinds contain granules, which, without exception, are connected among each other and the conidium-wall, here and there being provided with vacuoles. The smaller of the vacuoles are ungranulated, while the larger contain either single granules or groups of granules, with filamentous connections in all directions. When two conidia are directly attached to each other, the place of union is broad enough to allow of a direct connection of the granules of both conidia.

The thin-walled conidia possess lateral or polar shoots, in the form of sessile or pediculated granules, or of projections of varying lengths, covered with fine granules. The structure of these projections is either homogeneous or reticular. In thick-walled conidia I have never met with such shoots; here the homogeneous, shining shell is always smooth on the outside.

Many hyphæ terminate in simple or compound conidia-chains. These arise with the formation of successive notches, with increasing diameter of the hypha. Such chains are mainly formed by thin-walled conidia, with numerous, either granular or prolonged, buds. These buds not seldom appear dark-violet on their ends, while the stem near the conidia is uncolored. There is either an interruption in the wall of the conidium, or a direct connection of the stem of the bud with granules in the interior.

To obviate the suspicion that these appearances were produced, at least in part, artificially, fresh mould was examined in an indifferent medium, such as bichromate of potash, and a complete correspondence with what chloride of gold showed was found, although in a less marked degree; so that I would assert that only those who have studied the chloride of gold preparation previously will find the fine threads connecting the granules in a fresh preparation.

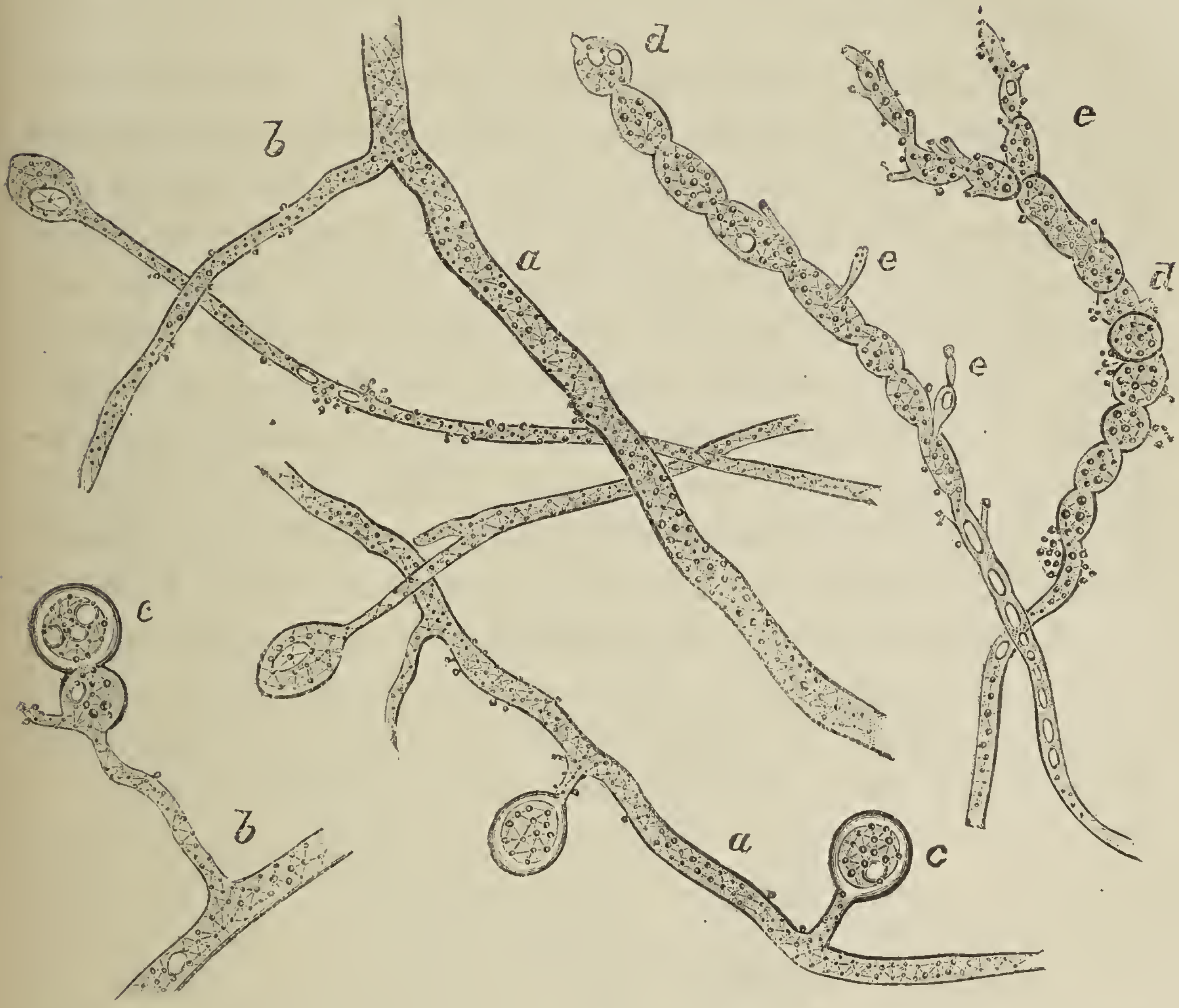

FIG. 1.—MILDEW STAINED WITH ONE-HALF PER CENT. SOLUTION OF CHLORIDE OF GOLD. *a a*, threads of mycelium; *b b*, hyphæ; *c c*, conidia; *d d*, chains of conidia. Granular buds are visible on all hyphæ and chains of conidia, while buds are missing altogether on thick-walled conidia, *c c*. At *e e* conical buds or projections are present, the thicker ends of which are compact and stained dark violet, while their stems appear light. Magnified 1,200 diameters.

I have also examined several kinds of oidium, of which the close relationship among each other, as well as with the spores of mildew, has been repeatedly demonstrated by other observers.

The structure of beer-yeast is identical, both in the fresh condition and after staining with chloride of gold, only in the latter case the appearances are more marked than in the former. In fresh preparations free granules of various sizes are recognized, of which some are at the limit of the visible, even with a magnification of 1,200, and groups composed of numerous homogeneous, yellowish, shining, apparently structureless granules, which are connected with each other by extremely delicate threads. The latter are not yellow, but gray. Some granules have fine offshoots, the connecting bridges being no longer visible, even with the greatest magnifying powers.

The essential oidia of yeast are, as is well known, mainly oblong bodies, the majority of which contain a large central vacuole. Great magnification shows that the outer shell represents a usually homogeneous, shining, yellow ring, thickened at *one* pole of the oidium. Within the shell, granules are present, each of which is separated from the other contents by a light seam, and connected with the shell by minute threads. The surface toward the vacuole is either smooth or covered by granules, a part of which projects into the vacuole. The thickened portion of the shell is not seldom perforated by smaller vacuoles, each surrounded by a layer of the yellowish, shining substance. In the interior of the vacuole isolated minute granules may be found in active motion, while smaller vacuoles contain a varying number of granules, connected among each other and with the shell by finest filaments.

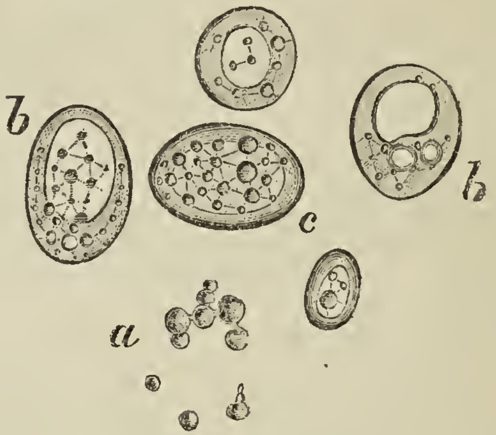

FIG. 2.—OIDIUM OF YEAST. *a*, homogeneous granules, partly isolated, partly in shape of chains; *b*, oidia with large vacuoles, whose walls are either compact or granular, or traversed by minute vacuoles; *c*, oidium devoid of a vacuole, its living matter in netlike arrangement, the points of intersection being the granules. Magnified 1,200 diameters.

Oidia without vacuoles have always a relatively thin shell, and contain a number of granules of different sizes, which, without exception, are united. Only the yellowish, shining substance of the shell and the granules become dark violet from the solution of chloride of gold; all other parts remain uncolored, or, at most, become only pale violet.

In fermenting wine I met with a great number of small, free granules, with short, rod-like formations (bacteria), and the round or oblong oidia. Numerous oidia form chains of two or more members, the single links of which are united by short, broad bridges. Occasionally a small bud is attached directly, with a broad basis, to a larger oidium. High magnifying power shows that here vacuoles are less numerous, and of markedly smaller size, than in beer-yeast. Each oidium is bounded by a yellowish, shining shell, perforated only at the union with its neighboring oidia, and containing in its interior a varying number of granules of different sizes, all connected by delicate threads. The granules show the same refraction and color as the shell, while the threads between the single granules and the different oidia are colored gray. Smaller buds and smaller isolated oidia are almost always compact, yellowish, shining, and apparently without structure.

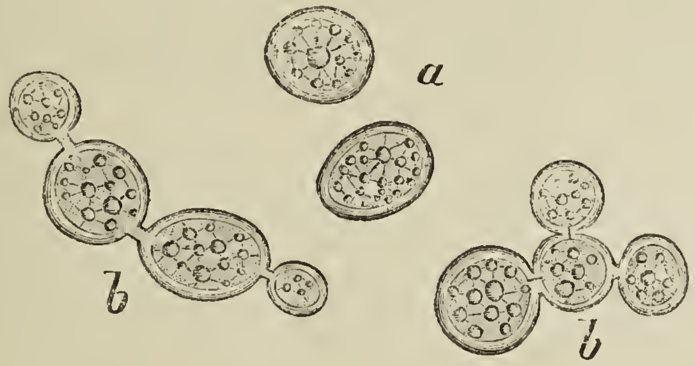

Fig. 3.—Oidium of Fermenting Wine. *a*, isolated oidia; *b b*, oidia in chain-like connection. In all these the living matter is arranged net-like; the shell, being also a formation of living matter, looks homogeneous, and is perforated where the uniting bridges inosculate. Magnified 1,200 diameters.

The grayish-white patches occurring in the mouths of infants, known as "thrush," contain beside epithelia the following: Very delicate granules in active, dancing motion—micrococci; short, single or double, oscillating rods—bacteria; delicate threads, straight or variously curved, smooth or granular, and in the latter case occurring in chains, mostly without movement—leptothrix; and finally oidia. After being kept for forty-eight hours in a moist chamber, the mass removed from the mouth shows a number of delicate mycelia, the hyphæ of which have small sporangia. This vegetation is perfectly identical with that of mildew. The oidia correspond in their size to those of wine; many contain large vacuoles, in all details like those obtained from beer and wine, only the color of the shell and the granules is more gray and very slightly yellowish. In preparations kept for forty-eight hours in a moist chamber, many oidia are united in chains, and many show prolongations, the extreme ends of which are always compact and structureless.[1]

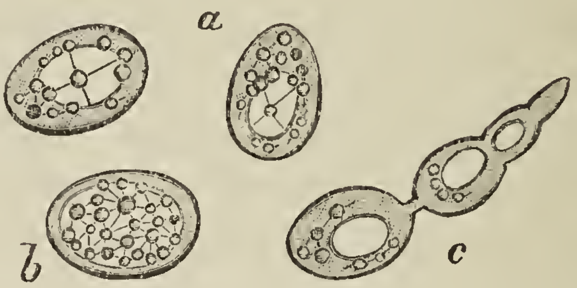

FIG. 4.—OIDIUM OF THRUSH FROM A CHILD'S MOUTH, AFTER BEING KEPT FOR FORTY-EIGHT HOURS IN THE MOIST CHAMBER. *a*, oidia with vacuoles, with formation of granules in the latter; within the vacuole single granules, with thread-like connections to the wall; *b*, oidium, with net-like arrangement of the living matter; *c*, chain of oidia in budding; the bud is compact, homogeneous; behind this are links with successively larger vacuoles. Magnified 1,200 diameters.

Finally, I have seen in the oidia of acid urine, kept quiet for several days, a structure perfectly identical with that of the mentioned various oidia.

From the description of different forms of the mildew, it is clear that its intimate structure is perfectly analogous to that of animal protoplasm, as it was first described by C. Heitzmann ("Sitzungsber. d. kais. Akad. d. Wissensch. in

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[1] The fungus of the thrush recently has been studied also by Paul Grawitz ("Zur Botanik des Soors und der Dermatomykosen," *D. Zeitschr. f. prakt. Medicin*, 1877). He made experiments of raising, in transparent, nourishing fluids, and found in fluids rich with sugar, after twenty-four hours, instead of single round or oblong conidia, clusters of oidia in budding process. The more sugar was present in the nourishing fluid the denser and less transparent were the colonies of the oidia, while in fluids containing less sugar the dumb-bell shapes of the oidia were prevalent. In the latter fluid there occurred chains of oidia, on the uniting bridges of which numerous grape-like buds were visible. In fluids with a small quantity of sugar and salt, pediculated buds grew in several directions from the periphery of oblong oidia, and in one main direction links sprang from the mother body, lastly forming a chain-like thread. The oidia of the thrush, as raised in a fluid rich with sugar, produced, if transported into a dilute fluid, thin mycelia of the same shape in which we see them in fresh thrush. Grawitz holds that the fungus of the thrush is in no relation to the oidium of milk, but rather identical with the mycoderma vini, first described by Cienkowski.

Wien," 1873). This investigator, from his observations of the phenomena of motion and growth of animal protoplasm, has arrived at the conclusion that there are two kinds of constituent substances in it, viz., first, a gray or yellowish substance, which forms the limiting layer or shell of the protoplasmic body, the granules, the central nucleus and all the connecting threads—the living matter; and, secondly, a liquid not possessed of life, which fills the vacuoles and the meshes between the network of the living matter—the protoplasmic liquid.

Only the living matter becomes easily and distinctly violet, when the preparation is stained with a solution of chloride of gold.

The net-like structure is plainly marked in the low vegetable organisms described. Here, too, the yellowish, shining substance, gray in thin layers, which is easily stained violet with chloride of gold, forms a wall or shell of varying thickness, the granules and connecting threads; while the vacuoles and meshes are filled with a liquid which not seldom contains isolated granules.

C. Heitzmann declares that living matter presents at first a compact, homogeneous little lump; that this matter, on growing, is differentiated by the formation of vacuoles into a framework, which includes the liquid, not endowed with life; that, finally, at a certain degree of growth the differentiation of a network takes place, the meshes of which contain the not-living fluid. These stages are demonstrable also in growing mildew and oidia. The first visible form-elements are homogeneous granules, and the first appearing buds are compact little projections, either globular or prolonged. The first differentiation consists in the occurrence of a central vacuole, and only after a certain development has been attained does the protoplasm appear in the form of a network.

That the yellowish or gray substance is in fact the living matter, is proved by the formation of buds on the hyphæ, conidia and oidia, and the conidia-chains. The minutest buds are, in every instance, direct prolongations of the shell, or a granule contained in the interior.

Art. IV.—*A New Vaginal Speculum.* By T. W. Graves, M. D., Woburn, Mass.

In introducing a new "combination speculum" to the notice of the profession, I wish to state in the beginning that it is not original except in its arrangement, being a combination of the "bivalve" and "Sims" speculum with the addition of an extending (or rather distending) movement that is frequently used for surgical purposes; but the instrument in its entirety is, so far as my knowledge extends, *new*. The expansion of the tips of the blades is accomplished by a short side lever which has been arranged with special reference to the accomplishment of its purpose without the use of too much metal, or interference with the manipulations of the operator (*see* Fig. 1). When reversed the instrument can be used as a "Sims," and as such gives very satisfactory results

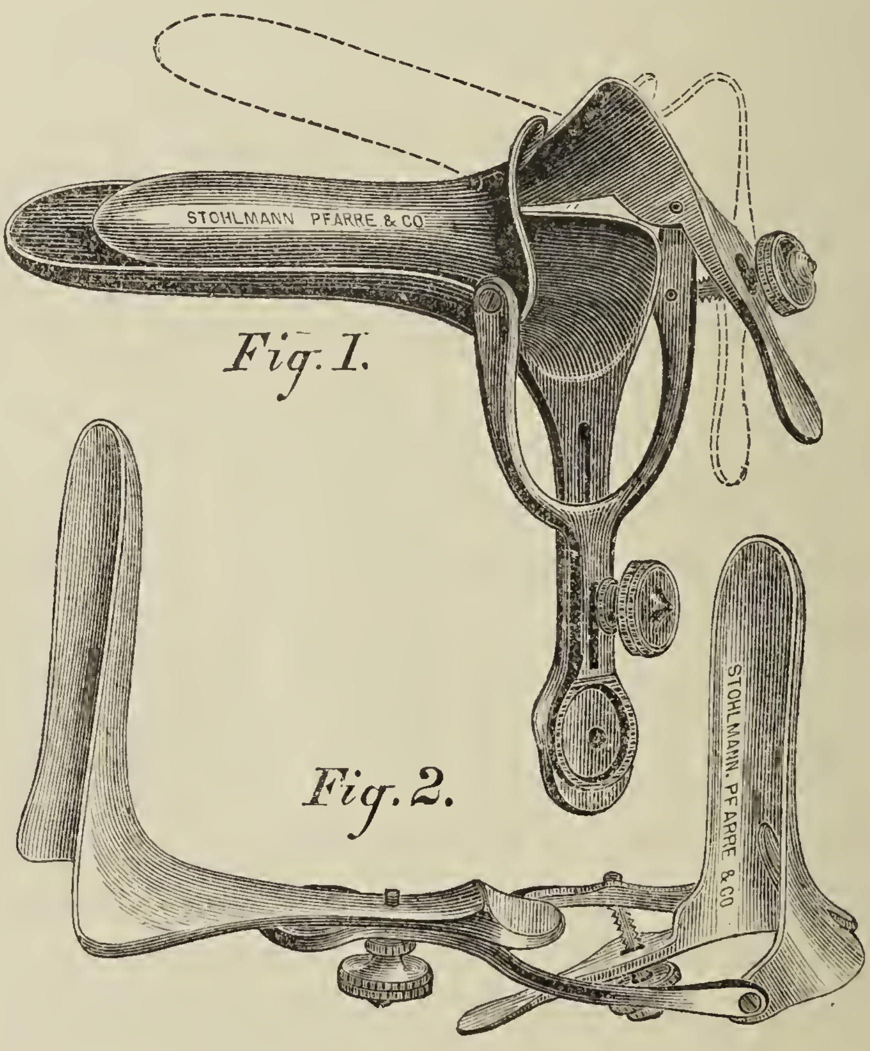

Fig. 1.

Fig. 2.

(*see* Fig. 2). It possesses no advantages for those who use that best of all instruments—the Sims, and have the services of a trained assistant; but the extension movement of the anterior blade and the "Sims combination" especially meet the requirements of the general practitioner, who, making his examinations without aid, needs a reliable instrument that will accommodate itself to the variable dimensions of different vaginæ, whether his patient be a virgin, or a multipara with relaxed vaginal tissue and possibly ruptured perinæum. This is accomplished by introducing the instrument, retracting the posterior vaginal wall and pushing forward the "sliding bar" with its attached anterior blade till the latter rests under the pubic arch, when it is secured by means of the "set screw."

This puts the *entire* vagina on the stretch from the cervical junction to the vulva, disposes of all prolapsing folds of loose vaginal tissue, and fully exposes the cervix for exploration or treatment.

Messrs. Stohlmann, Pfarre & Co., New York, have supplied me with one of these instruments that is entirely satisfactory in construction and finish.

ART. V.—*Milk as a Vehicle of Contagion.* By ALEXANDER R. BECKER, M. D., Berkeley, California, Fellow of the California State Medical Society, etc., etc.

AMONG the many questions now agitating the scientific world there is, perhaps, no one of more vital importance than the Germ Theory of Disease; and, up to the present time, at least, the most important application of this theory has been to the so-called zymotic diseases. These diseases are also attracting close attention on account of the fearful ravages caused by them, every year, in our cities, as well as in the rural districts. Any light which can be thrown on their origin and spread must, therefore, be hailed with satisfaction.

There is one source which we think has not been sufficiently insisted upon, although it has attracted more attention in England than in this country; and that is *milk.* How many householders ever think of inquiring where their milk-supply comes from, or what are the sanitary conditions of the farm or dairy whence it comes? In several of the States there are "milk-laws;" and some of our large cities have "milk-inspectors," who examine the milk, more or less carefully, for "adulterations." But no care of chemical or microscopical analysis can discover the infinitely more dangerous disease-germs or contagia. If the disease-germs be present in the water which supplies the dairy they will surely get into the milk, either innocently, through the necessary washing of the cans, or wrongfully, through intentional "watering." Or, if they should be present in the atmosphere, they would naturally be attracted and absorbed by a fluid so rich in nitrogen and water; which would also afford them a pleasant resting-place until, by its consumption, they could reach an appropriate nidus.

In England, several epidemics have been directly traced to the milk which came from dairies where the water-supply was found to be contaminated. In one case—at Bolton—forty-seven out of fifty families supplied from the same dairy were smitten with typhoid fever. On examination, the water-supply of this dairy was found to have been polluted by the dejections of a typhoid-fever patient.[1]

When we remember the utter carelessness which prevails in the country generally, on the subject of drains and privies, and their position relative to brooks and wells, we must stand appalled at the resultant danger. And here we find a very probable origin of many of our city epidemics. Moreover, we see that, in order to make our milk-laws and milk-inspection effective, they must be extended so as to cover *all* milk-farms, with their dairy-buildings, systems of sewerage, and water-supply. This would of course be very unpopular with the farmers, and would entail considerable expense, as it would largely augment the labors of the State Boards of Health.

But, if the people could be brought to see (1) the enormous death-rate from the contagious fevers; (2), the great danger of drinking milk containing contagia; and (3), the strong probability of such contamination of their milk-supply, owing to the ignorance and carelessness of dairymen, public opinion would soon demand the passage and strict enforcement of such preventive measures.

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[1] *See* paper by Dr. John Dougall, Medical Officer of Health for the Burgh of Kinning Park, Glasgow; *Glasgow Medical Journal*, May, 1873, p. 312. Also, "Eighth Annual Report of the State Board of Health of Massachusetts," 1877, p. 122.

Clinical Records from Private and Hospital Practice.

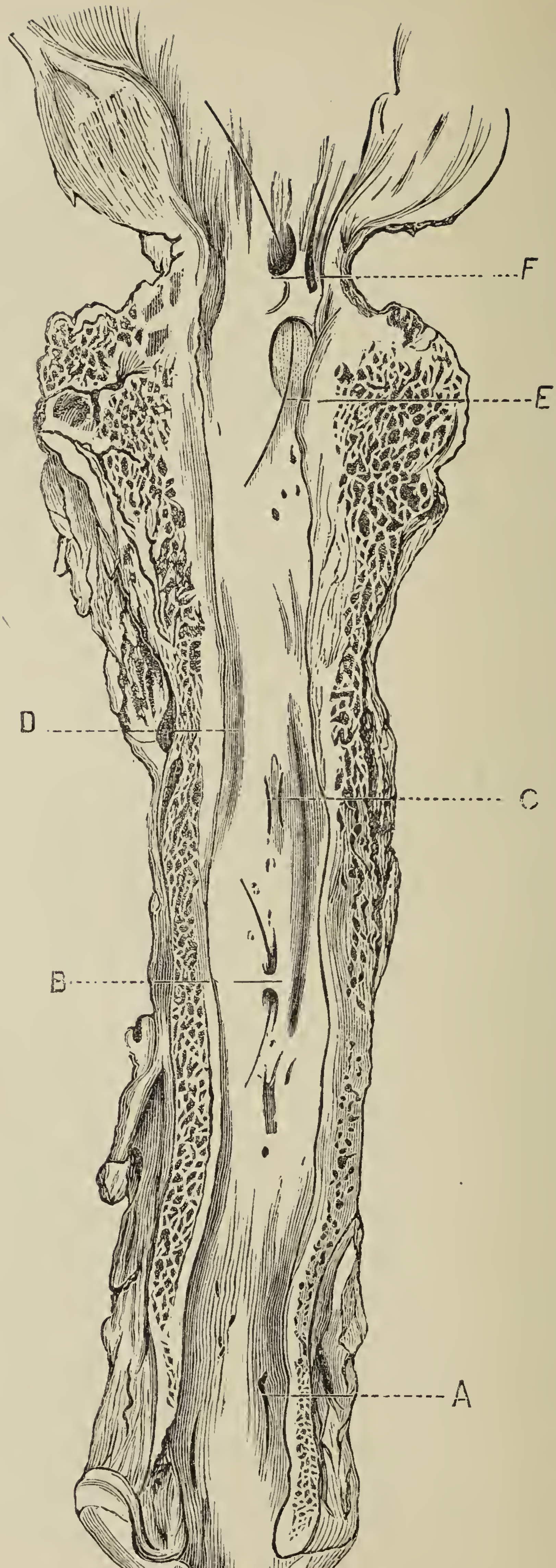
I.—*A Case of Severe Urethral Stricture radically cured by Internal Urethrotomy by Otis's Method.* By Stuart Eldridge, M. D., Surgeon of General Hospital of Yokohama, Japan; late Lecturer on Anatomy Medical Department of Georgetown University, Washington, D. C.

W. L., a native of England, was admitted to the General Hospital of Yokohama, Japan, December 31, 1874, suffering from syphilitic rheumatism, urethral stricture, and urinary fistulæ. February 14, 1875, I joined the staff of the hospital, and found the man an inmate. The history of the case, so far as the stricture was concerned, was as follows: L. had suffered from stricture, the result of a severe clap, for some eight or nine years, during which time he had led a very dissipated life, and had repeated attacks of gonorrhœa. In the latter part of 1870, or the beginning of 1871, he had been operated upon by external perineal urethrotomy with temporary relief, but had almost entirely neglected the after-treatment of his case, only occasionally and at long intervals passing a very small catheter when retention occurred or seemed imminent. The fistulæ at present existing had followed upon an abscess *in perinœo* in the early part of 1874—the perineal opening of the abscess being shortly after followed by the formation of a second fistula near the root of the penis. The constitutional condition of the patient was such that I attempted no active measures until May, 1875, when the status of the patient was as follows: The urine was passed by the meatus in an intermittent and very small stream of perhaps one millimetre in diameter, by far the larger quantity flowing from two fistulous openings—one, the larger, nearly on the perineal raphe, midway between the scrotum and anus, the other one centimetre to the left of the peno-scrotal junction. Both fistulæ seemed to diverge from a common sinus, though I was unable to pass an instrument into the urethra through either. To external manipulation the whole urethra was excessively knotted and indurated, the thickening and hardening being greatest in the proximal half of the penile portion. Examination of the urethra by bulb-sounds revealed a hard and insensitive stricture seven centimetres from the meatus, the contraction being seemingly about three centimetres in length, although, as with the most careful manipulation it would admit nothing larger than a bougie of four and one-half millimetres circumference, the determination of its proximal limit was uncertain. A false passage was detected, beginning a little more than two centimetres within the meatus, upon the right side of the urethral roof, and penetrating to a depth of five centimetres, this having probably resulted from rough or drunken attempts at catheterization, and the entanglement of the instrument in the fossa navicularis. The whole urethra anterior to the stricture was rough and nodular, while that portion of the mucous membrane nearest to the face of the contraction was distinctly sacculated at several points. May 18, 1875, after preparation by full doses of quinine for forty-eight hours, the patient was etherized, Dr. E. Massais assisting; the meatus, of which the calibre was fifteen millimetres circumference, was freely incised, and with great difficulty Holt's instrument, guarded by a Maisonneuve's conductor, was passed through the stricture, until firmly arrested about the bulbo-membranous junction. The instrument was then expanded to the utmost, although, from the fact that its point could not enter the bladder, the separation of that portion of the limbs which was engaged in the stricture was necessarily imperfect. Upon the withdrawal of the dilator, its conductor was found to have curled up in the urethra posterior to the just expanded stricture, and examination detected a second stricture of about the same calibre as the first, about thirteen centimetres from the meatus, or in the lower bulbous portion. The Holt was then, with but little difficulty, passed into the bladder, and expanded, but only by the use of considerable force, to twenty-four millimetres circumference. A conical steel bougie, twenty and one-half millimetres circumference, was then passed with ease through the whole length of the urethra. As I had been unable to feel the sudden yielding caused by rupture, and as almost no hæmorrhage followed upon this double operation, I was inclined to think that dilatation, not divulsion, had taken place, and had I been provided with a satisfactory instrument I should have performed internal urethrotomy at once. No unpleasant symptoms followed the operation, and at the expiration of a week I was able to pass a bougie of sixteen millimetres circumference without difficulty, though recontraction to the extent of at least four millimetres of circumference had evidently occurred. The sixteen millimetre bougie was passed six times at intervals of a week, when, the fistulæ having healed, the patient was furnished with a bougie, No. 10, English, and, with most careful instructions as to the future use of the instrument, discharged from hospital.

September 6, 1875, L. was readmitted, suffering as before from syphilitic rheumatism, but plus an evidently cirrhotic liver, and with both casts and albumen in his urine. On inquiry it was found that he had been drinking freely, had suffered from an acute gonorrhœa during the month of August, had entirely neglected the use of the bougie, and that the stricture or strictures had recontracted until the urine at times passed only guttatim, and the fistulæ in the perinæum had partly reopened. Shortly after admission retention occurred, and after unavailing efforts to pass a catheter, made by my colleague, Dr. Massais, I aspirated above pubes, and a few hours later succeeded in passing a filiform flexible catheter. As about this time the urine began to pass freely by the fistula, catheterization was but a few times performed. Little attention was given to the stricture until the following December, when, suffering from excoriation and neuralgic pain, the patient begged for a second operation; to which with some reluctance I consented, and determined to perform internal urethrotomy, believing as I do that, under the circumstances of the case, this operation is little, if at all, more dangerous than repeated and probably useless attempts at gradual dilatation. The danger of any operation in his condition was fully explained to the patient, but he persisted in demanding relief. Twenty minims per diem of tr. ferri chloridi were administered for a week, and during the forty-eight hours preceding the operation one hundred grains of quinine were given. December 20, 1875, Dr. A. Goertz, of Yokohama, assisting, ether was administered, and an examination made showing that the anterior stricture had contracted to a circumference of seven and one-half millimetres, while the bulbar stricture would admit but a filiform whalebone guide. Holt's dilator having been, by the exercise of a considerable pressure, passed along the guide into the bladder by means of a tunneled point, was expanded to twenty-seven millimetres circumference. Very trifling hæmorrhage followed, as had been the case at the first operation. An estimate of the calibre of the urethra about the anterior portion of the bulb, which was the only part of the canal which was approximately healthy, having been made by the use of Otis's urethrometer, the urethrotome of the same surgeon was introduced upon a guide, expanded to twenty-nine millimetres circumference, the estimated normal calibre, and both strictures freely incised from behind forward upon the floor of the urethra. Conical steel bougie, thirty millimetres circumference, was then passed into the bladder without difficulty, and ten grains of quinine administered before the patient left the table. The operation was followed by a sharp attack of urethral fever, with almost total suppression of urine for fourteen hours; but by free administration of quinine, dry cupping over kidneys, and hot baths, the condition of the patient was satisfactory by noon of December 22d. A week after the operation, conical steel bougie, thirty millimetres in circumference, was easily passed, and afterward at intervals of a week until it had been used five times in all, not counting the insertion upon the day of operation. The fistula rapidly closed, and the neuralgic pain did not recur; but the general condition of the patient became so bad that, as it seemed certain that some improvement in the urethral calibre would outlast the life of the sufferer, while I felt that each use of the instrument, in view of the still diseased condition of the kidneys, was attended by grave danger, the use of bougie was given up. July 16, 1877, the patient, although in most wretched condition, was discharged to the care of his friends, for repeated violations of hospital discipline, only to be readmitted October 18, 1877, in a state which seemed to promise speedy death. Contrary to all expectation, L. lived to June 1, 1878, when he succumbed to syphilitic ulceration of the larynx. From the time of the operation of December 20, 1875, the patient made no complaint whatever as to the urinary organs. He occasionally amused himself by the passage of a flexible bougie, No. 7, English, but by his own statement there never appeared to be the slightest necessity for so doing. With the exception of the five passages of bougie, thirty millimetres circumference, made within the six weeks immediately following the operation of December 20, 1875, I am certain that nothing larger than No. 7, English, entered the urethra from the time of the urethrotomy until after death.

Post-mortem examination, June 1, 1878, revealed among other lesions fatty degeneration of the kidneys and cirrhosis of the liver, while the immediate cause of death was clearly shown to have been necrosis of the larynx, presumably syphilitic. The penis and bladder were removed intact save by the displacement of the skin, and on examination the urethra was found to admit through its whole length a bougie of twenty-five millimetres circumference.

Upon examination of the preparation when slit up along the floor of the urethra, there appears, a little more than two centimetres from the meatus, and upon the right side of the roof of the canal, a smooth, flexible and elastic, but perhaps cicatricial, surface, about eight millimetres in length by four millimetres in breadth, slightly depressed below the level of the general surface. This I take to be the remains of the fossa navicularis, and the closed entrance of the false passage encountered at the first operation (*see* Fig., A). Six and one-half centimetres from the meatus, and nearly in the median line of the urethral roof, there is a small bridle of soft and elastic tissue, covering in a false passage of two millimetres in length (B). Two centimetres posterior to this, in the median line of the roof of the canal, is a small, irregular, but soft and


F
E
D
C
B
A

distensible cicatrix, about five millimetres in length by two millimetres in breadth (C), while extending backward from a point on the urethral floor, opposite to that just mentioned, is a fine linear cicatrix of about one and one-half centimetre in length (D). I believe these cicatrices to have been the result—the former of divulsion, the latter of internal urethrotomy. At the bulbo-membranous junction, there is an oval depression (E), covered with a smooth, elastic, soft membrane, which I take to have been the location of the urethral mouth of the sinus which formerly existed, the more as a probe, passed from behind forward upon this depression, enters a sac of two millimetres in depth, at the anterior extremity of the surface alluded to. There is also in the membranous portion a false passage of five millimetres in length, the bridge of tissue which covers it being yielding and soft.

Most careful examination of the specimen while fresh failed to discover the slightest pathological constriction at any point, while neither thickening nor induration could be detected by most painstaking search. The points alluded to above as presumably occupied by cicatricial tissue were only distinguishable as such by their superior smoothness, and the apparent absence of glandular structure when examined *in situ* under a low power. At the former location of the bulbar stricture, I was entirely unable to identify the scars, either of the old external operation or of the later internal incision. The bridges of tissue constituting the false passages, B and F, seemed equally soft and elastic with the rest of the mucous membrane, and certainly did not in the least diminish the urethral calibre. I should say that the evidence as to external perineal urethrotomy having been performed is solely the statement of the patient, as the asserted locality of the cicatrix of that operation was involved in opening of the perineal fistulæ. I see, however, no reason to doubt that such an operation had been performed.

The case taken in all its bearings seems to go far toward proving the permanent curability of urethral stricture, even under most unfavorable circumstances, providing that a free incision of the contractions is made, and kept open for a very short time. Considering the facts as above stated—a double, tight, cartilaginous stricture, exceedingly resilient, as shown by the failure to divulse and by its speedy return after large distention, to which were added the traumatic complication of a previous perineal section, the bad general health and habits of the patient, together with the trifling amount of treatment given after the internal urethrotomy of December 20, 1875—it is evident that, if, under such circumstances, so nearly perfect a result is to be attained by intelligent urethrotomy, the problem of the permanent cure of stricture may be deemed as solved.

Lest it may be suggested that the contractions in this case may have been the supposititious syphilitic stricture, I would state that the stricture and fistulæ antedated the syphilitic contagion by several years, and that consequently the anti-syphilitic treatment which the patient received could hardly be thought to have in any way affected the urethral constriction.

II.—*A Rare Form of Imperforate Anus; Malposition of Left and Obliteration of the Ostia of both Ureters with Consecutive Hydronephrosis of a Confluent Kidney; Operation, Death, and Autopsy.* By Arpad G. Gerster, M. D., Surgeon to the German Dispensary, New York.

It is well known that to establish an exit to the accumulated meconium in cases of imperforate anus may be, according to circumstances, an easy, a difficult, or an impossible matter. The most hopeless, fortunately also the rarest, are those forms in which a rectal and anal atresia is combined with mischief of the kidneys, consequent upon malposition and stenosis of the ureters. Among the ample array of authors enumerated in Prof. Esmarch's excellent monograph on diseases of the rectum,[1] only two[2] are mentioned who reported cases similar to the one about to be related. However, both these authors being inaccessible here in New York, I could not gratify my interest by comparing their cases with the present one.

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[1] Pitha und Billroth's "Chirurgie," 3 Band, 2 Abthlg., pp. 11–15.

[2] Senftleben, "Angeborne Missbildung der Nieren bei Atresia Ani," *Deutsche Klinik*, No. 8, 1858.

Wrisberg, "De præternaturali et raro intestini recti cum vesica urinaria coalitu et independente ani defectu," Goettingae, 1779.

Our case belongs to those in which successful operating is not only made difficult by the abnormally small dimensions of the pelvis, peculiar to them, but is altogether frustrated by a complication which technically renders the reaching of the intestine from the perinæum an impossibility. Even if the colon be exposed and opened from the groin, it is quite doubtful whether the patient can survive the consequences of his renal trouble.

In thinking of the case, the idea may suggest itself that establishing an aperture in the bowel, as well as in one or both ureters, would answer the indications of the case. Colotomy would secure an exit to the meconium, and the aperture in the ureter would permit the escape of the renal secretions. But, even if immediate success follow the exertions of the surgeon, it is obvious that no lasting benefit can be rendered to the patient.

On the other hand, knowing the absolute certainty of death in cases left to their fate, and considering the happy attribute of early infancy, viz., a comparatively slight vulnerability, even the boldest surgery seems in this emergency to be admissible. Delay is mischievous in most instances, excepting those in which the disorder has been detected immediately after birth. Here it seems judicious to wait for a day or two, to enable the rectal sac to fill up and to distend, a distended intestine being more easily found than an empty one. Where tympanites and cyanosis have set in, either spontaneously or through an ill-advised administration of laxatives, immediate interference is absolutely necessary.

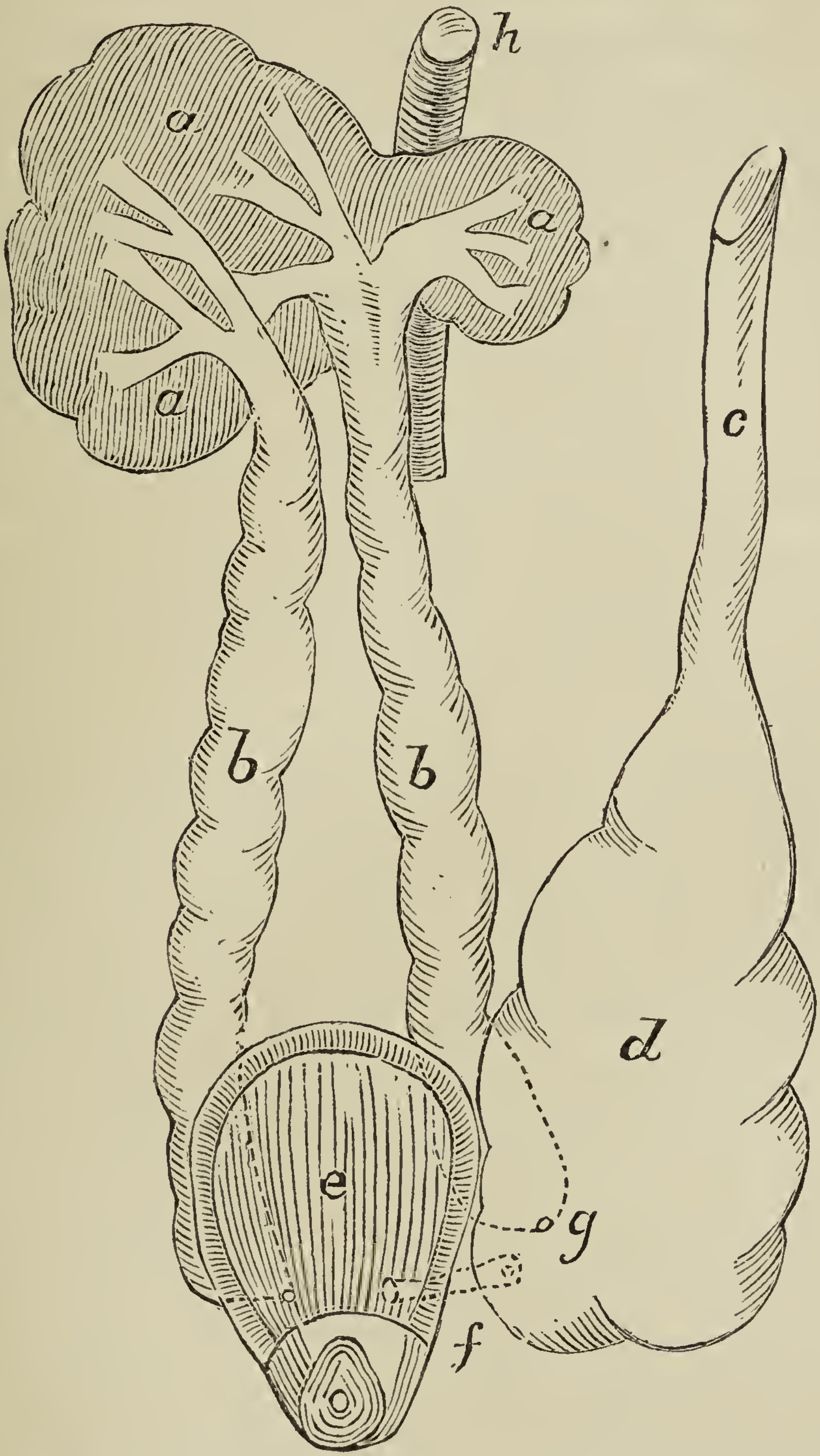
The case is as follows: The tenth child of a healthy laborer and his wife, male, forty-eight hours old—the preceding nine children were all normally developed—was presented July 27, 1878, at the surgical department of the German Dispensary for treatment. It was ascertained that, to cause an evacuation, the midwife administered to the new-born child a dose of castor-oil, after which great tympanites and cyanosis promptly set in. The father, hearing the child's piteous crying, rose in the night and endeavored to administer a soap suppository, but failed to discover an anal aperture. However, during the child's severe straining, he observed the escape of a few drops of meconium from the meatus urethræ. When presented the infant was in a very critical condition. The hard, distended abdomen, dyspnœa, with marked cyanosis, and an icteric hue of the integuments, were sufficient evidence of the great danger menacing the patient's life. At the site of the anal aperture an indurated, bluish-red swelling of the cutis was discernible, somewhat resembling a voluminous, fresh cicatrix. No convex protrusion noticeable when the child cried.

The escape of meconium from the urethra and the exceedingly small dimensions of the pelvis made it very probable that this case of atresia was in some manner implicating the uro-poëtic system.

Operation.—An incision was made extending from the base of the scrotum to the apex coccygis. The perineal muscles were divided, whereupon the contractions of the levator ani muscle became visible. This and the fascia pelvis were also incised, but no intestine presented itself at the bottom of the wound. Now the knife was laid aside, and the subsequent tissues were separated by the aid of a forceps and the nail of the index-finger to the depth of two inches. My endeavors to expose the viscus were mainly directed toward the left side of the sacral excavation, and at length a ruffled, bulging, gut-like, whitish body, of about the calibre of a small finger, was encountered. Being secured by two loops of silk ligature, this was well brought down and incised. Immediately several drachms of a whitish, turbid, alkaline-smelling fluid—intermixed with white, farina-like corpuscles—escaped, and it became evident that some portion of the uro-poëtic tract was opened.

The depth of the wound, together with the abnormally small dimensions of the pelvis, made it impossible under these circumstances to proceed further. Proposed colotomy was declined by the father, owing to the child's hopeless condition, and, after having been drained, the wound was dressed. Twenty-one hours after the operation death ensued.

Autopsy being permitted, the following information was gained: Residues of congenital peritonitis, such as fibrinous deposits, connecting the cæcum with portions of the intestinum ileum. The intestinal canal, especially the colon, immensely distended by gas and meconium. The kidneys forming one confluent body, the portion corresponding to the left side being smaller and much less developed than the other. *See* cut.) An isthmus of renal substance, half an inch wide,



a, kidney; *b*, ureters; *c*, colon descendens; *d*, rectum; *e*, bladder; *f*, hollow band connecting rectum with bladder; *g*, ostium of left ureter; *h*, aorta (schematic sketch).

connects the two sides of the organ, which is situated directly over the spine and aorta. Progressed state of hydronephrosis. Two separate, very distended and elongated ureters of the calibre of a small finger originate from the anterior surface of the kidney; their walls are greatly thickened. The right ureter and corresponding part of kidney are filled with a whitish, turbid, urinous fluid, in which there are suspended small corpuscles resembling grits. The left ureter same as the other, but empty and collapsed; at a distance of half an inch from the ostium an incised opening is visible in this organ (where it was cut into at the operation).

The attachment of the right ureter to the bladder is to be found at the normal site, its ostium being nearly or altogether obliterated. (The finest probe could not be passed through it.) The left ureter does not reach the bladder at all, but attaches itself to the medio-posterior and inferior surface of the rectum, and is also obliterated at the ostium. The rectum, a short blind sac, is distended by gas and meconium, to a diameter of two inches, and is attached to the upper part of the os sacrum by a short kind of mesentery, from which it depends into the pelvis. Anteriorly to the insertion of the left ureter, and at a distance of half an inch from it, is to be seen a cylindrical band of tissue, one-eighth of an inch long, one-eighth of an inch wide, connecting the rectum with the bladder there, where the insertion of the ureter is normally situated; a residue of the embryonic cloaca. The finest hair-probe cannot pass through the canal perforating this cylinder, but the voiding of meconium through the urethra seems to be conclusive proof of the existence of a passage, however small, through it. The small intestine is distended, but normal. Colon ascendens and transversum, very distended by their contents; colon descendens so contracted, for a distance of two inches and a half, as to permit the passage of a pencil only with difficulty. This attenuated portion, gradually widening, terminates in the enormously distended pouch, formerly described as the rectum. The bladder is empty and firmly contracted.

After perusing the results of the autopsy, it will be easy to understand how the elongated left ureter, representing a hollow, gut-like body of the size of a small finger, and reaching low behind the bladder and underneath the rectal sac, prevented further progress in the direction of the rectum. Since the "cul de sac" was not connected with the tissues forming the floor of the pelvis, but was attached only to the upper margin of the os sacrum, it is obvious that it could not have been reached without opening the peritoneal cavity, a step to be accomplished more advantageously by Tungel's method, endorsed by Esmarch.[1] It consists of an incision to be made immediately above, and parallel to the anterior third of the crista ilei. Its advantage is the ease with which the sigmoid flexure can be found after opening the peritonæum. Esmarch prefers it even to all known methods of colotomy in cases of congenital atresia of the rectum.

Notes of Hospital Practice.

CHARITY HOSPITAL.

Aneurism of the Innominate Artery; Tracheotomy; Death.—A patient, aged thirty-two, entered hospital suffering from dyspnœa, but not of a very distressing nature. Gradually the respiration became labored, and at times paroxysms occurred. During one of these attacks tracheotomy was performed, from which the patient suffered much relief. Subsequently he died. Between the time of operation and death, a very large amount of serous fluid escaped through the tracheal opening. At the *post-mortem* it was found that there was an aneurism of the innominate artery, which pressed upon the trachea. It was found also that a bony promontory jutted forward from the seventh cervical vertebra, and the trachea was compressed between them. The compression of the trachea was such that a probe would not pass without force. The reason for the relief obtained from tracheotomy was thought to be due to the fact that the tracheotomy tube was sufficiently long to pass below the point of compression, and thus establish a channel for the air to enter the lung.

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[1] *Loc. cit.*, p. 36.

The diagnosis of aneurism was not made out, although the chest was examined at the time.

Treatment of Deep Sinuses by Villate's Mixture.—Several deep sinuses have recently been under treatment in the surgical service in which no necrosed bone could be found, but which proved intractable to heal. Villate's mixture was tried, first of half strength, then of full strength. In some of the cases it proved of value, in others it failed partially or completely. The case in which it proved of most service was one of deep sinus in the neighborhood of the hip-joint. The original composition of the mixture was:

℞.	Liq. plumbi subacet.,	℥ j.
	Zinci sulph. cryst.,	
	Cupri sulph. cryst.,	āā ʒ ss.
	Aceti vini albi,	fl. ℥ vjss.

The mixture was injected once a day, and proved a more satisfactory application than any other. Some patients complained of severe pain, others felt but slight inconvenience from it.

Separation of Quadruceps Extensor from the Patella.—A man was admitted, stating that he had injured his knee and was unable to walk. On examining the patella, it was found in position, and not fractured, but about two inches above there was a slight tumor, painful on pressure. On close examination, it was noticed that between the tumor and patella the quadruceps extensor was wanting. The leg was placed in a plaster-of-Paris dressing.

MOUNT SINAI HOSPITAL.

Inhalation of Carbolic-Acid Spray in Phthisis; Influence on Sputa and Temperature.—The inhalation of carbolic-acid spray in phthisis has been introduced in order to test its efficacy. The spray was obtained from a solution holding two per cent. of the acid. The first case had fetid expectoration, with an average temperature of 102½°. The first effect of the inhalation was to increase to a marked extent the sputa, but at the same time to check the fetor. The most important effect of the inhalations was to decrease the temperature from 102½° to 101°, 100½° and 99°. In some of the cases carbolic acid acted as an irritant, giving rise to considerable spasmodic effects, and in these cases salicylic acid was substituted. The latter agent did not produce such a decided effect on the temperature, but its action on the fetor was equally marked.

Jaborandi: its Influence as a Diuretic.—Several cases have been closely observed to test the influence of jaborandi as a diuretic. The effect of the drug is recorded in one case in which an equivalent of sixty grains was given at a dose, and in another in which an equivalent of ten grains was given.

The first case was one of Bright's disease, with anasarca. Before being placed on the drug, the normal amount of urine was voided daily.

On September 9th ℥ss of the infusion of jaborandi, containing sixty grains of the leaves, was given three times a day.

September 10th, amount of urine in twenty-four hours, 112 oz.; 11th, 134 oz.; 12th, 133 oz.; 13th, 145 oz.; 14th, 125 oz.; 15th, 150 oz.; 16th, 140 oz.; 17th, 106 oz.; 18th, 84 oz.; 19th, 80 oz.; 20th, 90 oz. The jaborandi was ordered every two hours, instead of three times a day. September 21st, 110 oz.; 22d, 150 oz. Sweats profusely. September 23d—125 oz. Anasarca disappeared. The jaborandi was stopped. September 24th, 156 oz.; 25th, 75 oz.; 26th, 80 oz. Acetate of potash given. September 27th, 92 oz.; 28th, 124 oz.; 29th, 100 oz.; 30th, 98 oz.; October 1st, 108 oz.

The chloride of iron was then administered, when the urine fell to seventy-five ounces in twenty-four hours. Subsequently jaborandi had to be renewed.

In another case jaborandi was given three times a day in the form of an infusion, ℥ss, containing ten grains of the drug, to a man aged sixty-four, suffering from chronic Bright's disease and phthisis.

September 3d—amount of urine in twenty-four hours, 11 oz.; 4th, 6 oz. Infus. of digitalis, ℥ss *ter in die.* September 5th, amount of urine in twenty-four hours, 16 oz.; 6th, 16½ oz.; 7th, 10½ oz. Infus. of jaborandi, *ter in die,* ℥ss = 10 gr.

September 8th, 21 oz.; 9th, 17 oz.; 10th, 22 oz.; 11th, 24 oz.; 12th, 20 oz.

The physiological effect of jaborandi has been found not to be lessened by the continued use of the drug.

Lympho-Sarcoma.—A man aged thirty-five was admitted to hospital suffering from lympho-sarcoma. Ten years previously he noticed that the glands of the neck began to swell. This was of a transient character, but appeared at different times. One year ago the left inguinal glands enlarged without any special reason that he could assign, and reached the size of a small orange. There was slight increase in splenic dullness. The left thigh enlarged, and subsequently the whole of the left extremity. The left thigh at its upper third measured 24¾ inches, while its fellow of the opposite side 17½ inches. At the patella the left measured 18½ and the right 13¾ inches. The limb was then suspended, when the swelling subsided to a slight extent. A microscopical examination of the blood failed to give any positive results. There were no thoracic or other symptoms, other than those to be accounted for by œdema of the lungs. The patient died from exhaustion. At the autopsy the deep inguinal and retro-peritoneal glands were enormously enlarged, each of the latter being about the size of a hen's egg. The lungs were normal. The pleura was studded with sarcomatous tubercles the size of a pea. The spleen and liver contained numerous nodules the size of a hazel-nut.

Clinical Reports of the Demilt Dispensary.

A CASE OF EMPYEMA WITH PULMONARY CAVITY TREATED BY FREE OPENING, DRAINAGE, AND INJECTIONS; RAPID RECOVERY.

By C. E. Billington, M. D.,
VISITING PHYSICIAN TO THE NORTH DISTRICT.

On July 8th I visited, at 527 First Avenue, James Carr, aged 6 years. He was said by his parents to have been a very healthy child, though his large and prominent forehead and an antero-posterior curvature of the spine were suggestive of a rachitic tendency. About two months before he had had "pneumonia," from which he had never recovered. He was now very feeble and emaciated, had no appetite, some cough, rapid breathing, occasional dyspnœa. His mother had several times thought him to be dying. On examination the physical signs of hydrothorax were obvious—distended left chest, slight respiratory sounds at apex only, flat percussion. Exaggerated resonance and respiratory sounds on the right, with the heart apex-beat about midway between the sternum and the line of the right nipple. There were at that time no symptoms to indicate that the intra-thoracic fluid was pus.

The case was kept under observation for eight days. During that time a painful and tender swelling appeared below the left nipple.

On the 16th I decided to evacuate the fluid, and Dr. A. A. Smith saw the case with me. A subcutaneous syringe being introduced, the fluid was found to be pus of a "laudable" character.

On the 17th, Drs. W. T. White, Satterthwaite, A. A. Smith, O. B. Douglas, Lenahan, and M. J. Roberts being present, it was decided to make an opening at the point of swelling just mentioned—the fifth interspace, about half an inch to the left of the nipple line. The point of the bistoury being passed well in between the ribs, pus flowed freely, and about twelve ounces were drawn off.

It was then advised by some of those present to at once make a counter-opening, and pass through both openings a tent or drainage-tube. Others opposed this on the ground that a drainage-tube would be likely to be a source of irritation to the pleura when the lung should again expand. On account of this objection, and the feebleness of the patient, any further operation was deferred. The opening was simply covered with oakum. The administration of milk in abundance and of moderate quantities of brandy was directed. No medicine was prescribed, nor has any been used in the subsequent treatment.

On the following day (18th) the patient was found in an improved condition. With the kind assistance of Dr. Satterthwaite, whose successful management of a case of empyema has previously been reported in the "Demilt Dispensary Clinical Reports" (*vide* New York Medical Journal, July, 1877), the cavity was syringed out.

The incision, which had closed, was reopened, and the pus allowed to flow out. The small (ear) tube of a Davidson's syringe was then introduced between the ribs, and tepid carbolic-acid water (fl ʒ ss to the pint) was slowly and gently thrown in. When the quantity injected was sufficient to somewhat compress the lung, coughing occurred, and pus exactly similar in appearance to that which had flowed from the opening was expectorated. This of course raised the question whether there was a communication between the lung and the pleural cavity, or the matter expectorated was a purulent bronchial secretion. As will be seen, the further development of the case showed that the former hypothesis was correct. About half a pint of fluid having been thrown in, it was then allowed to flow out, and this was repeated several times until it came away clear. A tent of oakum was then introduced into the wound to prevent its closing, and a wad of carbolized oakum was bandaged over it.

The injection produced considerable irritation and exhaustion, and a good deal of coughing occurred during the earlier part of the night. The patient then slept well.

The next day (19th) his condition was found to be improved. He had a decided appetite. Temperature 99½°, pulse 150. Injection repeated in the same manner.

On the following day (20th) I was told by the parents that the child had during the night coughed up a large amount of bloody matter. On removing the tent bloody pus spurted from the wound, a considerable quantity being discharged with a few small clots. It was considered probable that the distention from the injection of the previous day had ruptured some adhesions, causing intra-pleural hæmorrhage, and it was evident that the blood had passed through an opening into the lung. Fearing to provoke further hæmorrhage, I omitted the injection on this day.

On the next day (21st) the patient was found to be gaining strength and appetite, and the discharge from the wound was not offensive. The syringing was accordingly again deferred.

On the 22d, however, the symptoms had changed for the worse. The child had slept little, was feverish and uneasy, had no appetite, had coughed up most offensive matter, and the discharge from the opening was found to be intolerably fetid. A thorough syringing was employed, and on the 23d the symptoms were found to be in every way improved. Temperature $101\frac{3}{10}$°, pulse 168, respiration 54.

Feeling convinced that a counter-opening with free drainage would be of great advantage, I requested Drs. W. T. White and Satterthwaite, surgeons to the Dispensary, to again assist me by making such an opening. They endeavored to accomplish this by introducing into the opening a bent probe, and seeking to bring out the point between two ribs, so that it could be felt and cut down upon. It was found impossible, however, to pass the probe in any other direction than laterally to the left on account of adhesions, and in this direction it was found that the ribs were crowded so closely together that it was impossible to pass the probe between them. This was in consequence of the sinking in of the chest-wall since the removal of the fluid, there having been no subsequent expansion of the lung sufficient to keep them in their normal position. The proper time to make the counter-opening would, therefore, have been that of the first operation or very soon after. Irritation to the pleura from a drainage-tube would, in the presence of such extensive adhesions, have been simply out of the question.

For about a week the syringing of the cavity was practised on alternate days, the condition of the patient remaining about the same. A new symptom was in the mean time becoming more and more marked. After a few syringefuls of the carbolized water had been thrown into the opening, the child would cry out "Oh, my throat!" and would presently bring up considerable quantities of the fluid injected. This showed not merely that a pulmonary cavity was directly connected with the intercostal aperture, but that this cavity had either increased in size by destruction of lung substance, or had become more patent in consequence of progressive expansion of the lung, so that fluid thrown into it had ready and rapid egress by bronchial tubes.

On the 29th, I was throwing in the carbolized water—perhaps more rapidly and in larger quantities than usual—when the child attempted in vain to cough up the fluid, and then, becoming strangled, ceased breathing, his eyes turned up, his pulse ceased, and his extremities and surface became rapidly cold. The women in the room cried out with vociferous lamentations that he was dead. A few anxious minutes of artificial respiration, etc., brought him to—a narrow escape from literal drowning.

Next day, 30th, temperature normal, pulse 150, respiration 60.

August 2d.—Pulse 168. Only a small quantity injected.

3d.—Temperature normal, pulse 156, respiration 50. No injection.

Sunday, 4th.—Patient not visited.

5th.—On entering the room with Dr. Douglas about noon, I found the parents weeping. The father held in his arms the child, who was deathly pale and stared vacantly, recognizing no one. He had since Saturday quite lost his appetite, refusing even milk. During the night he had been delirious and had since been in a state of coma-vigil. When addressed loudly and sharply, however, he showed a partial momentary comprehension. The extremities were cold. Temperature 102°, pulse 168 and very weak, respiration 60. In short, he was in a low typhoid condition with marked septicæmic narcosis—the result of a three days' accumulation and putrefactive changes of pus—the opening having closed. Death seemed imminent. The father, insisting that his child was "gone," refused for some time to allow me to do anything. At length after much persuasion he allowed me to insert first a probe and then a director into the opening. When it was sufficiently enlarged most offensive pus began to flow out—in all at least eight ounces. The depth of the stupor of the patient is best illustrated by the fact that, though this process ordinarily excited the most violent outcries and resistance, he now contemplated it with a blank stare, but gave no indication of pain, or indeed of feeling. The cavity was now thoroughly and repeatedly washed out; and even before the process was completed it was remarked by his parents as well as by ourselves that he began to show some signs of reviving consciousness, and a more healthy hue took the place of the ashy pallor in his lips and cheeks.

On this occasion I adopted a method which, though apparently only a slight modification in the management of the case, proved to exert a strikingly favorable effect on its subsequent behavior and progress. I inserted into the aperture a No. 5 flexible catheter through which the fluid could be easily and painlessly injected, and as readily flow out. With this I demonstrated the existence of two cavities—probably a pulmonary and an intra-pleural one. The injected fluid would often flow out clear through the catheter from the former, but, on my withdrawing the catheter, would come out from the latter through the wound thick and purulent. The catheter or an inflexible probe could be readily passed to the depth of 4¼ inches backward and upward through the lung, as I demonstrated on different occasions to several physicians. Injected fluid was spurted out for a considerable distance through the catheter on any contraction of the chest-wall, as in crying, or in the absence of fluid a strong current of air was blown through it.

I also adopted the plan of leaving in the wound, as a tent and drainage-tube, a piece of this catheter just long enough to pass between the ribs, the outer end being split and sewed to the bandage. This for a time was constantly retained without difficulty and answered an admirable purpose, but at length, from the sensitiveness and irritability of the intercostal wound, its presence became so painful that it could only be retained in place for a few hours at a time.

Next day (6th), the child seemed as bright as usual, had slept and was taking nourishment well. Very little discharge, and that not offensive. Temperature normal, pulse 144, respiration 30.

During the next eight days the cavity, or rather cavities were washed out daily after the method and with the appliances just described. The secretion of pus diminished rapidly and at length quite ceased. The change in the condition and appearance of the child was most striking, and was said by the parents to be the marvel of the neighborhood. His appetite was so voracious that his mother said she was "kept cooking for him all day," and his increase in flesh could be seen daily. His recent emaciated and cadaverous aspect was replaced by the hues of health and a respectable covering of flesh.

From the 14th to the 26th syringing was practised only on alternate days, with continued improvement. There was now no discharge whatever, and the injected fluid came away perfectly clear. There was auscultatory evidence of considerable lung expansion. That there were contraction and diminution of the pulmonary cavity was evidenced by the fact that a single syringeful of fluid injected into it was at once brought up into the mouth. A probe, however, could still be passed into it as before, to the depth of 4¼ inches. The heart was nearly an inch higher than its normal position. There was no cough.

August 28th.—The case was seen with me by Dr. A. A. Smith, and the above description verified. It was decided to discontinue injections and allow the opening to close up.

31st.—Doing well, with continued improvement.

September 3d.—Found him playing in the street, looking rugged and healthy.

I have related this case with so much detail, in the belief that it illustrates and emphasizes lessons of practical importance. I will conclude with a brief mention of some of these.

I. *The Diagnosis.*—The utility of the subcutaneous syringe in making this complete and definite is too obvious to need further remark. Its use should in many if not in all cases precede an operation.

II. *The Mode of Operation.*—While this should in cases of hydrothorax by pretty general consent be aspiration, it should by as general consent in empyema consist in a free opening.

III. *Counter-Opening.*—It is taught by the best authorities that even when an opening has been spontaneously made or indicated in empyema, a counter-opening is desirable for the purpose of facilitating free drainage. While this was omitted in the present case, there was, as has been seen, after the proper methods were adopted, excellent and rapid success without it.

IV. *Injections.*—This success was probably in great measure due to the manner in which injections were employed, which is a point of much practical importance. This method consisted mainly in the thorough washing out of the diseased cavities—the antiseptic action of the small proportion of carbolic acid used being probably a minor though not an unimportant consideration. The practical difficulty in the employment of antiseptic injections is their liability to be irritating. By employing very weak solutions and by care and gentleness in the operation, this danger may generally be avoided.

V. It has been found a useful expedient in some such cases to resect a portion of a rib to facilitate access to and drainage of the thoracic cavity. The pain and irritation caused in the narrow intercostal opening by retaining there a bit of small-sized flexible catheter have been mentioned, and had the case been a protracted one a resort to the above procedure would have been almost a necessity.

VI. This case is most instructive in illustrating so markedly the direct effect of septic poisoning, and the equally direct result of the true treatment of that condition—the removal of the cause when accessible. The induction of an extreme typhoid condition by the septic accumulation of forty-eight hours, followed by its entire disappearance within less than twenty-four hours as a result of the removal of that accumulation and the cleansing of the cavity that had contained it, is a fact that certainly needs no comment. I have seen quite as speedy and striking results from proper local treatment to the throat and nasal passages in diphtheria. When the predominating importance of the element of septic poisoning from definite local sources shall be as fully and as generally recognized in our theory and practice in certain diseases as it has lately come to be in surgery, the extreme absurdity of trusting to so-called "constitutional" remedies, while employing no measures, half measures, or false measures of local disinfection, will doubtless be appreciated. Some words of Dr. Clifford Allbutt on this topic (*Lancet*, October 20, 1877) are worthy of quotation. "Analogy would lead us to expect what practice shows us, namely that simple septic fever will cease at once when the source of the poison is cut off; for it cannot be too earnestly impressed upon all physicians that septicæmia is as a rule a daily cycle, not the result of one but of repeated absorptions; that in fact it is a disease bringing about its own daily cure, but day after day reproduced. Cleanse the uterus, cleanse the vomica, drain the empyema, wash the stump, open the abscess, sponge out the peritonæum, syringe the ears, swab the throat—in a word, remove or disinfect the poison at its source, and in nine cases out of ten the hectic fever will cease within twenty-four hours, not to return."

VII. That the foregoing principles may yet have much wider practical application than has yet been thought of is not impossible. Their applicability to the treatment of pulmonary cavities is too obvious not to have suggested itself to many. An interesting history of practical efforts in this direction has been given by Dr. William Pepper (*American Journal of Medical Sciences*, October, 1874). The present case is interesting as adding confirmation to Dr. Pepper's most important conclusion that "lung cavities are very tolerant of external interference." It tends also as strongly as a single rapid and complete success can do to the establishment of another important principle, namely, that in certain cases at least the mode of interference most likely to be beneficial will consist in a free opening, drainage, and thorough washing out.

Proceedings of Societies.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, June 11, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. Dawson presented a child seven weeks old, having a large tumor on the right thigh, near the groin, about the size of a cocoa-nut, and having an ulcerated surface at the lower part. It existed at the time of birth, and had been opened by the attending physician. It was probably myxo-sarcomatous.

Dr. WALKER reported a case of prolapse of the entire uterus. He was able to restore it to place.

Dr. NOEGGERATH said such cases were rare.

Dr. GILLETTE had seen two similar cases within a year. In one case the uterus had been outside the body for thirteen months, and looked like a huge section of an elephant's trunk. He reduced it in twenty-four hours by strapping tightly with adhesive plaster. The other case had been down eight months, and was treated by bandages.

Dr. NOEGGERATH asked if any one present knew of a successful perineal operation in a case where the prolapse was entire.

Dr. MANN had seen a case where the entire uterus was outside the body. He applied a rubber bandage, punctured the uterus, and succeeded in reducing it. He then operated on the cervix, and afterward on the perinæum, and the woman was cured. The uterus had been down about three months.

Dr. NOEGGERATH was inclined to believe that the operation was not usually successful in such cases.

Dr. CHAMBERLAIN had no experience of permanent cure in such cases. The longest time he had observed them was about five months.

Dr. SKENE thought it was established that no tissue in the perinæum would sustain the uterus. His cases had returned.

Dr. NOEGGERATH said that a thorough operation, by any method, would occasionally succeed. He had tried Dr. Gillette's operation three times; the first case had almost fatal hæmorrhage in the fourth week, and another had septicæmia, so he thought the operation not entirely without danger.

Dr. GILLETTE had done the operation fifteen times since he described it to the Society, and had never had either hæmorrhage or septicæmia.

Dr. Noeggerath read a paper on the genesis of ovarian cysts, giving details of his observations, which had led him to believe that the first change in the blood-vessels does not take place in the intima but in the muscular coat of the arteries. He wished to correct his previous remarks on the subject of such change.

Dr. Jacobi differed from Dr. Noeggerath in his views as to the origin of cysts.

Dr. Skene described the case of a woman in whom the rectum terminated at the upper part of the perinæum. A fold of the posterior wall of the vagina dropped down, and when lifted exposed a circular opening, resembling very much the anus, and of a sphincteric character. He also described a case of malformation of the urethra. The anterior wall was continuous with the vestibule, and the posterior wall of the urethra and the anterior wall of the vagina were united. In the recumbent position the patient could retain her water, but not in walking. No operation was done, because the patient did not remain.

Dr. Gillette described a case of vesico-vaginal fistula of eight years' standing, and which presented a wretched appearance from the excoriation caused by the constant discharge of urine. The woman said she had been operated upon for the removal of stone four or five months ago. Two operations were done, but without success, as the parts were exceedingly small and it was impossible to obtain necessary space. It was proposed by Dr. Gillette to divide the perinæum before attempting another operation, and the opinion of the Society was asked as to the propriety of that procedure.

Dr. Skene thought it was a question whether even closing the fistula would obviate the incontinence.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, September 24th, 1878.

Dr. John C. Peters, President.

The President drew the attention of the Society to the recent death of Dr. J. W. Kibbee, in New Orleans, from yellow fever. He said that Dr. Kibbee was so firmly convinced of the benefit to be derived from the use of cold water in fever that, in spite of the remonstrance of friends, he insisted on going to New Orleans to put into practice his method of treatment. Unfortunately Dr. Kibbee died, but the obedience to his sense of professional duty could not be too highly praised.

Removal of the entire Scalp by Machinery.—Dr. Finnel presented, on behalf of a candidate, the entire scalp of a woman 28 years of age. While visiting an oleo-margarine factory, she stooped down to examine some of the processes. Behind her head was a revolving shaft, and in some manner her long hair became wound round the shaft. The rapidity of the shaft was such that the whole scalp was torn off without giving sufficient pain to draw her attention to the condition of her head. The first sensation she experienced was coldness of the head, and on putting up her hand she found that her hair was gone. Following the injury there was no shock and no pain. On examining the head the denuded surface was seen to extend from the base of the occiput to the left eyebrow. The eyebrow was gone, and the left ear was so much injured as to hang down by a strip of skin.

The scalp measured 24 inches in circumference, and was attached to the hair 32 inches long. It was at first proposed to apply the scalp, but on examining there was noticed such an amount of grease adhering to the raw surface that any effort at union was thought to be useless.

Dr. Finnel said it was the intention to tan the scalp, and thus allow the patient to use her natural hair, but not in the natural way.

Dr. Abbe referred to a similar case which occurred four years ago, and was under treatment in St. Luke's Hospital. The amount of scalp removed was nearly identical with that presented, and the manner in which it was done was similar. Three months after the injury, granulation extended over the denuded cranium. It was found, in the use of grafts, that those only were successful that were placed within an inch from the cicatricial margins. The grafts were the size of canary-seed, and, during the four years that the process of cicatrization continued, about twelve thousand were used.

Dr. J. C. Peters referred to the case of a waiter at a club-house, who was scalped by a falling mirror. The scalp was separated into two flaps, which were attached at their base. These were brought into position, and within a few days union took place.

Tumor of Choroid Plexus of Horse.—Dr. Liautard presented a tumor removed from a horse aged nine years. The case had a legal as well as a pathological bearing, inasmuch as it brought up the question of the soundness of the animal at the time of sale. The day following the purchase of the animal by the last owner signs of disease were manifest. Two days subsequently there was inability to rise, and the attempts to get the horse on his feet were only partially successful. The cause seemed to be partial paralysis of the hind legs. The other symptom of brain trouble was lack of disposition to eat. After taking a mouthful of food, mastication would cease, as if from forgetfulness. There was difficulty in causing the animal to back. In a short time coma appeared, followed by death. The autopsy revealed a hard tumor of the choroid plexus, which was referred to the microscopical committee.

Infantile Pleurisy.—Dr. J. Lewis Smith presented the lungs of a child who died at the age of five months. For the first three months of its existence it had been bottle-fed, and subsequently had been given to a wet-nurse. On September 10th a slight cough made its appearance. This was followed by an elevation of temperature, but no increase of respiratory movements. *September 14th.*—Dyspnœa. Fever and rapid pulse, but no dullness on percussion. *September 15th.*—Marked respiratory moan. Dyspnœa and prolonged respiratory murmur. The diagnosis at that time was pleuro-pneumonia. *September 16th.*—Temperature 101°. Dullness in the right side pronounced. There was then heard on inspiration a creaking sound, such as heard by bending new leather. During the day death occurred. At the autopsy there was found an abundance of fibrinous exudation over the posterior part of the right lung, where the creaking sound was produced.

Tumor of the Pylorus.—Dr. BLUMENTHAL presented the stomach of a patient, furnishing the following history: A man aged sixty-three suffered for twenty years from a cough, but not sufficiently so to make him an invalid. There was no expectoration. Dr. Blumenthal was of the opinion that the case was one of chronic catarrhal pneumonia. After four months' residence in the South he returned to the city very much improved.

After a short time a tumor appeared three inches to the left of the umbilicus. This tumor was three inches in diameter. After a consultation, one of the gentlemen expressed the opinion that it was cancer of the pancreas. The case progressed without much change for a few months, when acid eructations with occasional vomiting became prominent symptoms; subsequently diarrhœa occurred, which resulted in death.

Autopsy.—After death no sign of the abdominal tumor could be made out. The pancreas was normal. It was attached, however, to the stomach at the pyloric extremity. The pyloric extremity of the stomach was much enlarged and indurated. The tumor felt during life must have been the displaced tumor of the pylorus. Dr. Blumenthal thought that, from the smooth and fibrous appearance of the stomach, it possibly was not cancerous in character. This opinion was shared by Dr. Jacobi, who had examined it, but rather hastily. The specimen was referred to the microscopical committee.

Dr. JOHN C. PETERS stated that in 1844, among the first specimens presented to the society, was one of fibrous degeneration of the stomach, by himself.

Dr. LOOMIS had also presented a specimen. He thought it strange that, with such a small pyloric opening, there should not have been more vomiting.

A case came under his observation in which vomiting from a constricted pylorus was the most important symptom. After cessation of the vomiting the patient suffered much from distention, and at the end of four or five days great relief was obtained from evacuation of the stomach.

Dr. Finnel asked if fibrous thickening of the stomach was not usually more extensive and uniform than in the case presented.

Cancer of Rectum; Operation. — Dr. L. A. Stimson presented two specimens of cancer of the rectum. The first case was a man who suffered from obstruction in the passage of fæces for six months before operation. On examination, a tumor was found within the anus extending up four inches, and situated principally on the anterior surface of the gut.

During the operation of removal much difficulty was found in separating the cancerous rectum anteriorly from the bladder, and posteriorly from the hollow of the sacrum. Four inches of the gut were excised, and the operation completed in the usual way. The tension on the sutures at the anus was so great as to require their removal. An examination of the wound three weeks after the operation showed the presence of three small suspicious nodules in the anterior surface of the suppurating wound above the margin of the anus.

The second case was one of tumor of the posterior wall of the rectum which had been slow in progress, and extended over a period of two years. It was two inches and a half in extent, and limited to the posterior surface of the gut. There was no infiltration of the surrounding tissue. The tumor, with the involved portion of the wall of the rectum, was removed, and the wound closed by sutures.

Stated Meeting, October 9, 1878.

Dr. John C. Peters, President.

Ligature of the Lingual Arteries and Extirpation of the Tongue; Shrady's Operation.—Dr. Jos. W. Howe presented a specimen of epithelioma of the tongue, for which he ligated the lingual arteries near their origin, according to the method proposed and practised by Dr. G. F. Shrady (Journal for August, 1878, page 192). The patient was a farmer, aged seventy. He was admitted to St. Francis's Hospital on September 17th, suffering from epithelioma of the tongue. Eight months previously a small ulcer appeared on the left side of the tongue near the tip. This spread rapidly, and was accompanied by swelling and induration of the tongue near the margin of the ulcer. Much pain was complained of when the tongue was moved. On examination there was found a deep and irregular ulcer, extending from the anterior extremity of the tongue along the left side to within an inch of the anterior pillar of the fauces.

About the centre of the organ the ulcer was three quarters of an inch in depth. The borders of the sore were thickened, indurated, and tender on pressure. A diagnosis of epithelial cancer was made, which was subsequently confirmed by microscopic examination. The disease spread rapidly after admission to hospital, traveling to the right side of the tongue, and involving the floor of the mouth near the frænum. As it was feared the ulceration would soon involve the arteries, a consultation was held, and it was decided to ligate the lingual arteries. Dr. Howe performed the operation on September 30th, assisted by Drs. Shrady, Ripley, and Stimson. An incision was made along the upper border of the hyoid bone, extending from its anterior extremity to about an inch beyond the apex of the greater cornu. The arteries were exposed between the posterior border of the hyoglossus muscle and the external carotid artery. Catgut ligatures were applied, and the wound closed in the usual manner. After ligation of the arteries it was decided to remove the diseased tongue through the mouth. The extremity of the organ was seized by a tenaculum and drawn forward. After cutting the attachments to the floor of the mouth to the extent of an inch, it was brought still further forward, and a strong ligature passed through its centre close to the root. By this means it was firmly held, and the remainder of the operation finished by dividing, with a curved scissors, the palatoglossus at its point of attachment. A piece of diseased tissue attached to the gum near the symphysis was also removed. The removal of the tongue was absolutely bloodless, as much as if the operation had been performed on the cadaver. When the attachment of the palatoglossus on the left side was divided, there was a slight flow, easily controlled by ice. On the third day after the operation the temperature of the patient rose to 103°; but on the fifth it was $101\frac{1}{2}$°. The patient slept well, and retained all the food given him by enema or by the stomach. On the sixth day he was able to sit up and help himself to various things in the room. He was also able to swallow, which he was unable to do previous to the operation.

On the morning of the seventh day his nurse was aroused by a call from the patient, whom he found sitting up in bed, and a stream of blood spurting from the wound on the right side of the neck. Death occurred in a few moments.

Autopsy.—A *post-mortem* examination showed that the lingual artery on the right side had sloughed, from the point of ligature to its origin in the external carotid, the fatal hæmorrhage coming from the latter vessel. On the left side the ligature had not separated. A plug was found in it that reached to, and protruded slightly into, the carotid.

Dr. Howe was of the opinion that the sloughing was due to the disturbance of the vasa vasorum during the dissection and search for the vessel, the defect thus caused in the nutritive supply, together with the age of the patient, being the elements that rendered the result unfavorable. The condition of the ligated vessel on the sound side would indicate the operation as a feasible one, and one which rendered the removal of the tongue much easier than it would be under other circumstances.

Cancer of the Rectum; Aneurism of Heart.—Dr. Peabody presented specimens of cancer of the rectum and aneurism, which had been removed from a patient dying of pyæmia, after the operation of removing the cancerous rectum. The tumor was removed after the manner proposed by Volkmann, and, although not done under the antiseptic spray, was dressed according to Lister's method. The patient died of pyæmia on the sixth day. No abscesses were found, with the exception of one in the elbow-joint. Micrococci were found in the kidneys. There was an aneurism about the size of a chestnut in the left ventricle of the heart. At first it was thought that the fibrinous formation in the aneurism looked like a neoplasm, but more thorough examination proved this not to be so.

Cyst of the Iris; Removal of Foreign Body from the Vitreous.—Dr. H. Knapp presented the history of the following case of cyst of the iris: A boy, while firing off a toy pistol four years ago, was injured in the eye by a fragment of the cap. He was seen two days afterward, and, on examination, a wound was found at the upper margin of the cornea, through which the fragment of cap had passed to lodge in the vitreous. On the following day the boy was anæsthetized, and placed on his side so that the rays of the sun would strike obliquely on the eye and illuminate the foreign body. An incision was then made in the sclerotic, and, by means of a fine hook, the fragment was extracted. The wound in the sclerotic was then closed with sutures, and the patient recovered without any bad symptoms. The sight was perfect, the wound in the sclerotic not causing any error of refraction. During last August, four years after the injury, the patient came under the care of Dr. Gouley, in the absence of Dr. Knapp. Dr. Gouley discovered a cyst of the iris. Dr. Knapp saw the case in September, two months after the cyst developed. It was situated in the upper half of the anterior chamber, the lower margin of the cyst being opposite the centre of the pupil. The sight in the affected eye was good. The operation for removal of the cyst consisted in introducing a narrow knife through the cyst from one margin of the cornea to the other, and cutting upward. The tumor and iris then prolapsed, and as much of the cyst wall as possible was removed. The patient did well after the operation. Dr. Knapp said different means have been suggested for the cure of cyst of the iris, such as repeated puncture and removal of a part of the wall. Both of these methods have proved successful. There were thirty-six cases on record, and four had come under his own observation. In half of the cases, sight had been lost eventually, either from sympathetic or other trouble in the eye.

The formation of cysts had been accounted for in two ways: 1. Sacculation of the iris; 2. That the foreign body carried with it either cilia or cells, and implanted them in the iris, where they took on growth.

The first view, advocated by Wecker, of Paris, was the one which Dr. Knapp favored, and which was borne out by the case presented. The natural secretion of the iris, being retained in the folds, formed with the epithelium a cyst proper.

Cancer of the Rectum; Removal; Death.—Dr. C. R. Briddon presented a carcinomatous rectum, which he had removed from an unmarried woman, thirty-six years of age. The patient entered the Presbyterian Hospital, September 14. There was no family history of malignant disease. The first symptoms, indicating rectal trouble, occurred two years previously; they were pain in the back and tenesmus. These lasted two months, and returned after an intermission of two months. The patient became anæmic, and suffered from hæmorrhage and pain in the rectum. On examination a mass was discovered two or three inches above the anus, and adherent both anteriorly and posteriorly. The operation performed consisted in cutting the perinæum anteriorly and posteriorly from the anus, and thus bisecting both perinæum and lower portion of the rectum. Traction was then made on the flaps of divided rectum, and the tumor exposed and removed. It was found adherent to the peritonæum and sacro-iliac ligament. During the operation an opening was made in the peritonæum. This was closed, and the cut portions of the rectum were divided and the sides of the perinæum were brought together. Twenty-four hours after the operation symptoms of peritonitis appeared, but after a few days these subsided. On the eighth day after the operation the patient began to vomit, but on the ninth day she was better. In the evening collapse occurred, and on the following day she died. *Autopsy.*—It was found that at no point in the wound was there any repair. The opening into the peritoneal cavity was in a sloughing condition.

Rupture of the Urethra from Contusion of the Perinæum; Perineal Section.—Dr. W. T. Bull presented the bladder and penis, with part of the perinæum, of a man, aged forty, who had been severely kicked thirty-six hours before admission to the Chambers Street Hospital. He had passed no water since the injury, and had intense pain in the hypogastrium, with all the appearances of extravasation of urine into the perinæum and scrotum. The bladder on percussion was distended to the umbilicus; and all instruments were arrested at five and a half inches from the meatus. Perineal section was promptly done, and a soft rubber catheter left in the urethra. Death occurred on the third day from cardiac thrombosis; the heart and kidneys were found fatty. The urethra was ruptured completely across, just in front of the bulbo-membranous junction, and its ends, showing several small longitudinal rents, and separated by an interval of an inch, projected into an irregular cavity, the size of a small hen's-egg. This cavity was in front of the anterior layer of the triangular ligament, and limited anteriorly by the lacerated and sloughy tissues of the perinæum and bulb. The perineal incision opened into it from below. The bladder and uninjured parts of the urethra were healthy.

Epithelial Cancer of the Larynx; Tracheotomy—Dr. Beverly Robinson, by permission of the Society, presented a patient upon whom he had performed tracheotomy for epithelioma of the larynx. The man was thirty-one years of age, and a jeweler by occupation. He was first seen by Dr. Robinson October 18, 1876. Eighteen months previous to this he began to suffer from pain in his throat during swallowing. Fourteen months later he began to cough and expectorate a viscid phlegm. For the past two months the patient had profuse suppuration from the left middle ear. His general appearance was pale and anæmic, but not cachectic. Upon inspection and palpation of the throat exteriorly, no swelling over the soft parts over the larynx was found, and there was no deviation of the organ. The lymphatic glands under the lower jaw were normal. There was no pain on pressure.

Laryngoscopical Examination.—Considerable thickening of the epiglottis, and a wellmarked mammary appearance on its posterior surface. Along its free margin two distinct fissures were visible. An olivary growth from the ventricular space on the left side. The vocal cords and ventricular bands were not implicated by the growth. The arytenoid cartilages were swollen and smooth. An examination of the chest gave negative results. From October 20th to November 22d portions of the growth were removed from the sacculus laryngis by means of McKenzie's tube forceps, and examined by Dr. Satterthwaite, who was of the opinion that they presented the characteristics of epithelial cancer. The disease, on December 6th, had extended to the arytenoid cartilages, and by January 1st the entire larynx was involved. He was next seen at Mount Sinai Hospital, on January 15th, and was suffering from intense dyspnœa. The diseased tissues were infiltrated, but smoother than when previously examined. Tracheotomy was performed by Dr. Guleke. On March 29th Dr. Robinson saw the patient at his own house. He was then wearing a tube. September 29th, was again seen. He had in the mean time improved in appearance and weight. He swallowed without difficulty and seldom coughed. The submaxillary glands were not enlarged. He wore a tube with numerous perforations on its upper surface, which readily permitted articulation when the opening of the canula was closed with the finger. If a canula were used without these perforations, talking was much more difficult. On examining the larynx the glottis was found to present an opening not larger than one of the orifices of the canula, and on inspiration none of the intralaryngeal parts could be seen. The diseased surfaces were smooth and hard. Dr. Robinson said the points of interest in the case were the rarity of it, the absence of engorgement of the glands of the neck, which usually was considered a constant sign of the disease, and the improvement in the appearances of the growth, and in deglutition, cough, and general health after tracheotomy.

Dr. Robinson also drew attention to the fact that, although breathing could not take place through the opening in the larynx, it was sufficiently large for purposes of phonation. He presented also a sound for introduction into the tracheotomy tube for purposes of easy introduction. The sound was blunt-pointed, and projected beyond the extremity of the tube.

Dr. Howe questioned the diagnosis of epithelial cancer, notwithstanding the microscopical evidence. He did not think, if cancer of the larynx were present, that it would progress toward resolution, as the case of Dr. Robinson seemed to have done. He thought also that the condition of the submaxillary glands pointed to non-malignant disease.

Dr. Briddon referred to a case of sloughing out of a cancerous mammary gland with subsequent cicatrization. In reply to Dr. Bull, he said it presented the histological characteristics of cancer.

Embolism of the Pulmonary Artery following Labor.—Dr. Elizabeth M. Cushier presented a specimen of embolism of the pulmonary artery, removed from a patient who died in the New York Infirmary. The patient was aged twenty-eight, and was confined on August 10th. She progressed favorably till the morning of the ninth day, when she was permitted to sit up. On sitting up, and making an effort to reach a chair, she made an exclamation, and fell back on the bed. In a short time consciousness returned, and the patient begged for air. The heart's action was then weak and irregular. A severe attack of dyspnœa was induced by an attempt to administer a stimulant. The heart ceased beating also, but on the application of the battery, which was at hand, the heart's action returned, and with it consciousness. A few moments afterward she suddenly turned on her side, and respiration and the heart's action ceased. The time from the attack till death ensued was about thirty minutes.

Autopsy.—Lungs collapsed. The pulmonary artery contained a firm plug extending upward from the right ventricle. The right auricle and ventricle were dilated to their utmost; the left ventricle was firmly contracted.

Removal of Hair-Pin from the Female Bladder.—Dr. John C. Peters reported a case in which Dr. Snelling removed a hair-pin, incrusted with phosphates, from the bladder of an unmarried woman.

The foreign body was felt through the vagina. It was removed by dilating the urethra. The operation lasted an hour and a half, and was finished at one sitting. The hair-pin measured 3¾ inches. The whole of the detritus weighed 315 grains. Some discussion took place in regard to the treatment of patients having a special mania for introducing foreign matters into the bladder. Dr. Briddon said he had one case at the Presbyterian Hospital. He inserted a silver suture through the meatus urinarius, and prevented her introducing anything into her bladder during her stay in hospital.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 3, 1878.

Dr. S. S. Purple, President.

Local Treatment of Eczema.—Dr. H. G. Piffard read an able and interesting paper on the local treatment of the different forms of eczema. He said that, three years ago, he read a paper on the internal treatment of the disease, and considered that as most important and intricate. The hygienic treatment was also important, and the local treatment was situated midway between them. Local treatment might cure, but it would not prevent a relapse; still, in the charge of a case, it was a necessary feature. It was important not to pass into routine, but to individualize each case, as the conditions which might exist in one might not in another. Every outbreak of eczema has a prodromal period, and it was often hard at first to say what was impending. The active congestion of the skin might run different courses. It might pass into passive congestion, as frequently occurred on the face. The treatment indicated was to reduce the congestion and relieve the itching. For that purpose, a solution of the bromide of potassium—10 gr.-℥—could be used with advantage. Strong solutions were caustic. The antipruritic remedies were hydrocyanic acid, either as lotion or ointment, and hydrate of chloral. A combination of equal parts of chloral and camphor proved of decided benefit.

When the congestion of the skin passed into the formation of vesicles, a cooling lotion was indicated; when crusts formed and had been removed, ablution was important. In many cases, however, water had a bad influence, due, in Dr. Piffard's opinion, to the osmosis which it caused. To obviate this, a solution consisting of glycerine, rose-water, and chloride of sodium, was recommended. Ointments of ammoniated mercury, or other mercurials, held the first rank as applications to the raw surface. Next in order came lead. The form advised by Hebra was equal parts of lead-plaster and olive-oil. The great objection, however, was the tendency to rancidity; and to counteract that Dr. Piffard had substituted vaseline for the olive-oil. He had used, pretty extensively, hamamelis in the form of tincture of the fresh plant, and was of the opinion that it was too lightly thought of by the profession, and too highly by the people. The so-called extracts were merely distilled waters containing the volatile principles of the drug. The preparation which he referred to and exhibited was of advantage, from containing the volatile as well as the non-volatile principles. He had used also with benefit stramonium and conium.

When the dry stage of the disease was reached, the different tarry preparations were indicated. When fissures occurred he had found plumbago, in the form of fine powder, to be very useful. The variety that was of greatest value was that used by photographers. It served merely as a protector. The objection to its use was its color. If the eczema was indolent and livid, he preferred the tincture of hamamelis as an application to reduce the congestion. If, on the other hand, there was no lividity, stimulant applications would prove of benefit, such as biniodide of mercury, iodine, cantharides, and croton-oil. The croton-oil could be readily applied as a cerate, consisting of white wax and croton-oil in equal parts.

Dr. Piffard had used hypodermic injections of the arsenite of soda into the eczematous patches. Each injection consisted of twenty drops of from one-fifth to one-half per cent. solution, and was repeated every two or three days. This was original with himself. He found it of decided value, and had found that it was not followed by abscess.

It frequently happened that in chronic eczema, with infiltration, an application of liquor potassæ would lessen the infiltration. It was hard to say how it acted; the first effect was an effusion of serum, due, as he thought, to exosmosis.

Dr. L. D. Bulkley agreed fully with the views of Dr. Piffard, and considered the local treatment as secondary. He had found that hot water was an important remedy. He had two cases under observation, which were very much improved by the method. In one case of eczema of the palm of the hand it was of special value. The method of application was to place the palm of the hand in hot water, and retain it there till the water cooled.

In eczema of the leg he had found pressure, by means of the rubber bandage, of more value than any other variety of treatment. The patient wore the bandage both day and night. In his hands the nitrate of silver had been very serviceable in many cases, either as the solid stick or dissolved in spt. eth. nitros., gr. x—℥j. The effect of the spirits of nitre was to dissolve the fatty matter and bring the agent into direct relation with the tissues.

Dr. J. C. Peters had used the tincture of hamamelis internally. He preferred a tincture made of the plant and leaves. One patient, suffering from bleeding hæmorrhoids for six or eight years, was cured with it after other remedies proved valueless. The patient was a lady, who would not allow any examination. He gave from ʒj—ʒiij of the tincture three times a day.

Dr. Peters also referred to the use of silex, but doubted whether it had any effect.

Dr. Piffard said that it was difficult to say what value was to be attributed to silex. It was an important ingredient in many of the more valuable mineral waters. He would hesitate to reject it as altogether valueless.

Bibliographical and Literary Notes.

Art. I.—*A Practical Treatise on the Medical and Surgical Uses of Electricity, including localized and general Faradization and Galvanization, Electrolysis and Galvano-cautery.* By Geo. M. Beard, A. M., M. D., and A. D. Rockwell, A. M., M. D. Second edition, revised, enlarged, and mostly rewritten, with nearly 200 illustrations. New York: William Wood & Co., 1878.

The first edition of this work appeared in 1871. From that time to the date of issue of the volume before us, the authors inform us in their preface, the preparation of the second edition has engaged much of their attention. The result is a work almost entirely new, considerably enlarged, in many respects greatly improved, and conveying a large amount of useful information concerning electricity in all its forms, and its application to the treatment of disease. Some parts of the volume would, we think, bear condensing; and some parts of the chapter on the history of electro-therapeutics, in which the authors assume the *rôle* of martyrs to science, might as well have been left for posterity to write. There is no doubt, however, that they have done good work in directing attention to the practical value of electricity in medicine; and we are far from wishing to disparage their efforts. The present edition contains the reports of more than 200 cases, many of them new, illustrating the use of electricity in the various diseases to which it is especially applicable. "Central galvanization" is described in detail. The chapters on electro-physiology include the results of recent experiments by the authors, and also those of other observers. But the strength of the work is in its practical and clinical department, which is largely based on personal experience, and which represents, with apparent impartiality, the records of success and failure. The cuts are numerous, but almost uniformly bad.

ART. II.—*A Treatise on the Science and Practice of Midwifery.* By W. S. PLAYFAIR, M. D., F. R. C. P., Professor of Obstetric Medicine in King's College, Examiner in Midwifery to the University of London, etc. With Notes and Additions by Robert P. Harris, M. D. Second American, from the Second and Revised London Edition. With two Plates and one hundred and eighty-two Illustrations. Philadelphia: Henry C. Lea. 1878. Price, $5.

THIS excellent text-book has been submitted to a thorough and careful revision, and will be found fully up to the times in every department. If we made an exception, it would be in regard to the advice given as to the employment of cold water in puerperal pyrexia. The author says he should "never think of employing it unless the temperature was over 105°;" and he mentions a case in which he saved a patient, with a temperature ranging continuously over 105°, by keeping her for eleven days almost constantly wet with iced water. He adds: "But this method of treatment is excessively troublesome, and is in no way curative." We think the cold water treatment, to be effectual, should be adopted long before the temperature reaches 105°; and we know by abundant experience that, with the cot devised by the late Dr. Kibbee, the application of the water is so easy and simple a matter that it may be intrusted to any nurse of ordinary intelligence.

The notes by the American editor enhance the value of the work for the American student. Those on the use of forceps are particularly good, and constitute by themselves a valuable chapter. The Appendix, also by the editor, is devoted to the intra-venous injection of milk instead of the transfusion of blood. We notice with pleasure that the present edition is dedicated to Prof. T. Gaillard Thomas.

ART. III.—*The Cell Doctrine: Its History and Present State.* For the use of Students in Medicine and Dentistry. Also a copious bibliography of the subject. By JAMES TYSON, M. D., Professor of General Pathology and Morbid Anatomy in the University of Pennsylvania, etc. Second edition, revised, corrected, and enlarged. Illustrated. Philadelphia: Lindsay & Blakiston, 1878. Price, $2.

THIS volume has the great merit of presenting in a condensed form the essential points of a subject that has been very extensively discussed, and on which widely different opinions exist. In preparing the present edition the author has reëxamined many of the original sources of his information, and made such changes and corrections as were required. The extent of the literature on the subject may be estimated from the fact that over three hundred and fifty new references have been made in the present edition to articles that have been published, for the most part, since the issue of the first edition. The work will be found greatly improved in many respects.

ART. IV.—*The Atlantic Islands as Resorts of Health and Pleasure.* By S. G. W. BENJAMIN, author of "Contemporary Art in Europe," etc. Illustrated. New York: Harper & Brothers, 1878.

THIS work is intended for the general reader, but is of interest to the profession from the fact that it contains a large amount of authentic information, obtained by personal experience, regarding the various islands to which invalids may be sent to enjoy a favorable change of climate. The scope of the work may be estimated from the following list of the islands described: the Bahamas, the Azores, the Channel Islands, the Magdalen Islands, Madeira, Teneriffe, Newfoundland, the Bermudas, Belleisle-en-Mer, Prince Edward Island, Isles of Shoals, Cape Breton Island, and the Isle of Wight.

ART. V.—*Fowne's Manual of Chemistry, Theoretical and Practical.* Revised and corrected by HENRY WATTS, B. A., F. R. S., Editor of the *Journal of the Chemical Society*, etc. A New American, from the Twelfth English Edition. Edited by ROBERT BRIDGES, M. D., Professor of Chemistry in the Philadelphia College of Pharmacy. With 177 Illustrations. Philadelphia: Henry C. Lea, 1878.

THE rapid advances in the science of chemistry render frequent changes necessary in a text-book intended to be complete. Fowne's "Manual" is known to every student of medicine, and the present volume, having undergone a most elaborate revision, will fill its place more satisfactorily than any of its many predecessors. The English edition appears in two volumes; but by the use of a small and clear type the American publishers present it in a single volume, of convenient size and form. It should be in the hands of every student of medicine.

ART. VI.—*A Practical Treatise on Diseases of the Ear, including the Anatomy of the Organ.* By D. B. ST. JOHN ROOSA, M. A., M. D., Professor of Diseases of the Eye and Ear in the University of the City of New York, Surgeon to the Manhattan Eye and Ear Hospital, etc. Fourth Edition. Illustrated by Wood Engravings and Chromo-Lithographs. New York: William Wood & Co., 1878.

THIS standard work is so well known to the profession that we need only refer to the changes that have been made in the new edition. These will be found chiefly in the chapter on "Diseases of the Internal Ear," which has been entirely rewritten, with important additions. We recommend the work in its present improved form as the best and most practical treatise on the subject with which we are acquainted.

Art. VII.—*Transactions of the Canada Medical Association. Tenth Annual Meeting*, Montreal, September 12 and 13, 1877. Vol. i., 8vo, pp. 244. Montreal: Lovell Publishing Company. 1877.

The President, Dr. William H. Hingston, in his address, among other things, discusses the question of union of the Canada Society with the American Medical Association, and mentions the action of both societies upon the question. He predicts the union of both societies in the near future, and suggests that absorption will go on from the north.

A number of good scientific articles are included in the volume, the most elaborate of which seems to be that on "Excision of the Knee-Joint," by Prof. George E. Fenwick, of Montreal.

Art. VIII.—*Reports on Diseases of the Chest*, under the direction of Horace Dobell, M. D., etc., assisted by numerous and distinguished coadjutors in different parts of the World. Chief Assistant-editors: John E. Shaw, M. D., etc., R. Shingleton Smith, M. D., etc., Charles Meymott Tidy, M. B., etc., Adolphe Wahltuch, M. D., etc., R. Wharry, M. B., etc. Vol. iii. June 1, 1876, to June 1, 1877. 8vo, pp. 438. London: Smith, Elder & Co. 1878.

Something over a year ago we had occasion to notice the second volume of Dr. Dobell's "Reports," and thought well of it. In this volume the author and assistants have accumulated the most valuable writings on chest diseases which have been published in the medical journals throughout the world during the year. It is very convenient for the profession to have all the literature on the subject collected in a single volume.

Art. IX.—*Public Health Reports and Papers*. Vol. III. Presented at the Meeting of the American Public Health Association in the Years 1875–'76. With an Abstract of the Record of Proceedings, 1876. 8vo., pp. viii., 241. New York: Hurd & Houghton, 1877.

Some time ago we gave our readers a brief but favorable notice of the second volume of these Reports. This volume, although not quite so large as the one previously issued, contains nearly thirty special articles by distinguished medical gentlemen, making it one of especial hygienic interest. We recommend its perusal.

Art. X.—*A Guide to the Practical Examination of the Urine.* For the use of Physicians and Students. By James Tyson, M. D., Professor of General Pathology and Morbid Anatomy in the University of Pennsylvania, etc. Second edition, revised and improved, with illustrations. Philadelphia: Lindsay & Blakiston, 1878. Price, $1.25.

The second edition of this book has been carefully corrected, and improved by the incorporation of such new facts and processes as serve to render it more complete and serviceable for reference in daily examinations.

Art. XI.—*Elementary Quantitative Analysis.* By Alexander Classen, Professor in the Royal Polytechnic School, Aix-la-Chapelle. Translated, with additions, by Edgar F. Smith, A. M., Ph. D. With thirty-six illustrations. Philadelphia: Henry C. Lea, 1878.

This is an excellent translation of an excellent text-book on the subject of quantitative analysis, and to those intending to pursue the study of that branch of chemistry it will prove a very useful work.

Art. XII.—*Report of the First Congress of the International Otological Society.* New York, September, 1876. Published by a committee composed of Charles J. Kipp, Arthur Mathewson, J. S. Prout, and J. D. Rushmore. 8vo., pp. iv.–159. New York: D. Appleton & Co. 1877.

The members of this society show much interest in the advancement of the specialty which they follow. The several contributors have furnished many short and really valuable practical articles on ear diseases.

Art. XIII.—*A Monograph on the Treatment of Diphtheria, based upon a New Etiology and Pathology.* By William C. Reiter, A. M., M. D. Philadelphia: J. B. Lippincott & Co. Pp. 48.

The author strenuously advocates the use of large and repeated doses of calomel in the treatment of diphtheria. He reports five cases, and says he has notes of many more, cured by this means.

Art. XIV.—*Prescription Writing.* Designed for the Use of Medical Students who have never studied Latin. By Frederic Henry Gerrish, M. D., Professor of Materia Medica and Therapeutics in the Medical School of Maine. Second edition. Philadelphia: J. B. Lippincott & Co., 1878.

We can recommend this modest little book as a very useful one for students, whether they have studied Latin or not.

Art. XV.—*The Physician's Visiting-List for 1879.* Twenty-eighth Year of its Publication. Philadelphia: Lindsay & Blakiston.

It is one of the most popular visiting-lists in use. It is compact and portable, and contains all that is needed by the ordinary practitioner for his daily record.

Books and Pamphlets Received.—A Handbook of Surgical Pathology for the Use of Students in the Museum of St. Bartholomew's Hospital. By W. J. Walsham, M. B., F. R. C. S., Demonstrator of Anatomy and Operative Surgery at St. Bartholomew's Hospital; Surgeon to the Metropolitan Free Hospital, etc. London: Henry Kimpton, 1878.

Treatise on Dental Caries. Experimental and Therapeutic Investigations. By Dr. E. Magitot, Laureate of the Institute of France, of the Faculty and the Academy of Medicine of Paris, Correspondent of the American Dental Association, etc. *Crowned by the Academy of Medicine.* Translated by Thomas H. Chandler, D. M. D., Professor of Mechanical Dentistry, and Dean of the Dental School of Harvard University. Boston: Hurd & Houghton, 1878. 8vo. Pp. 275. Price $2.50.

The Pathological Anatomy of the Ear. By Hermann Schwartze, M. D., Professor in the University of Halle. With the Author's Revisions and Additions, and with the Original Illustrations. Translated by J. Orne Green, A. M., M. D., Aural Surgeon, Boston City Hospital; Clinical Instructor in Otology in Harvard University. Boston: Hurd & Houghton, 1878. 8vo. Pp. 174. Price $2.

The Principles and Practice of Surgery. Being a Treatise on Surgical Diseases and Injuries. By D. Hayes Agnew, M. D., LL. D., Professor of Surgery in the Medical Department of the University of Pennsylvania. Profusely illustrated. In two volumes. Vol. I. Philadelphia: J. B. Lippincott & Co., 1878. Pp. 1062.

Treatment of Fracture of the Shaft of the Femur, the "American Method." Read before the Minnesota State Medical Society, June 18, 1878. By Franklin Staples, M. D., of Winona (reprinted from the Transactions of the Society).

The Duties of the Medical Profession concerning Prostitution and its Allied Vices. Being the Oration before the Maine Medical Association at its Annual Meeting, June 12, 1878. By Frederic Henry Gerrish, M. D. Reprinted from the Transactions of the Association.

Atlas of Skin Diseases. By Louis A. Duhring, Professor of Skin Diseases in the University of Pennsylvania, etc. Part IV. Vitiligo; Alopecia Areata; Tinea Favosa; Eczema (Rubrum). Philadelphia, J. B. Lippincott & Co., 1878.

On the Use of the Solid-Rubber Bandage in the Treatment of Eczema and Ulcers of the Leg. By L. Duncan Bulkley, A. M., M. D. (reprinted from the *Archives of Dermatology*, July, 1878).

On Diet and Hygiene in Diseases of the Skin. By L. Duncan Bulkley, A. M., M. D., reprinted from the *Virginia Medical Monthly*, October, 1878.

Bibliotheca Medica. Cincinnati: Robert Clarke & Co. Pp. 244. Price 25 cents.

Transactions of the Massachusetts Medico-Legal Society, Vol. I., No. 1, 1878. Cambridge: Riverside Press, 1878.

Transaction of the State Medical Society of Kansas, at the Twelfth Annual Sessison, held in Topeka, Kansas, May 8 and 9, 1878.

Reports on the Progress of Medicine.

CONTRIBUTED BY DRS. W. T. BULL AND EDWARD FRANKEL.

SURGERY.

Weir on Thymol Dressing.—In the *Ohio Medical and Surgical Journal* for June, 1878, Dr. R. F. Weir gives the results of its use at the Roosevelt and New York Hospitals, as follows: "The thymol dressing has now been tested in twenty-five cases, as follows—amputations (thigh and leg), 5; compound fractures (thigh and leg), 3; lacerated wounds (leg and foot), 6; abscesses, 3; removal of bone for necrosis, 3; lumbo-colotomy, 1; amputation fingers, 3; removal tumor, 1—with the result of eleven successes and fourteen failures. By failure is meant that an aseptic condition was not preserved. The explanation given for such a failure, when first resorting to Lister's method—i. e., a too limited experience in its application—does not hold in connection with Ranke's dressing, for the house-staff were thoroughly trained in its use, and every detail was carefully carried out. The failures were not only characterized by the usual appearance of odor, etc., but even in the successful cases, that is, where the wounds were progressing satisfactorily, it was often noticed that there was greater elevation of the temperature and more frequent appearance of acute œdema than are met with in the carbolized dressings.

"The mackintosh used in lieu of the gutta-percha tissue or parchment paper, suggested by Ranke, suffered from the action of the thymol, and soon became unfit for use, and ofttimes a greenish color was imparted to the skin next the wound.

"A further test would have been sought for before publication, but these results have been so decidedly confirmed by the reports received this week from the surgeons assembled at the recent meeting of the Surgical Congress, at Berlin, that it was not deemed worth while to delay further in order to present an increased number of cases. In the congress, held in April of this year, Dr. Küster, of Berlin, Olshausen, of Halle, Schede and Langenbeck, Berlin, spoke of the uncertain results obtained by thymol. Bardeleben (Berlin) objected to it, not only because it did not possess the antiseptic qualities of the five-per-cent. carbolic acid and solution, but also because the sweetish odor of the thymol produced headache and attracted swarms of flies.

"Aside from these main considerations it is to be regretted, on account of the surgeon himself, that thymol is not likely to replace carbolic acid, for the stained nails and roughened skin are the necessary concomitants of the use of Lister's dressing, only mitigated slightly, as I have found, by washing the hands freely with the juniper-tar soap.

"Perhaps the yet untried carvol (from carroway seed) may prove the coming antiseptic." W. T. B.

Subcutaneous Rupture of Tendon of Triceps Brachii.—By Güterbock (*Langenbeck's Archiv*). A strong woman, forty-seven years old, while carrying a basket on the right arm, had fallen down-stairs a few steps, and attempted to support herself with the right hand. Examination showed that the right forearm was in active flexion but could not be extended except passively; in spite of the swelling of the elbow region, an horizontal rupture of the triceps tendon could be felt above the olecranon. The upper margin of the tendon was distinctly marked about one inch from the olecranon. The olecranon was well defined, and the finger could reach the posterior supra-trochlear fossa. The elbow-joint was fixed in extension in plaster of Paris for one week, the second week maintained in moderate flexion. After this time the triceps began to exert action on the forearm, and its functions gradually became almost normal—that is to say, all movements could be made with force, only active extension was impossible beyond 180°. The horizontal cicatrix was marked as a linear furrow. W. T. B.

OBSTETRICS.

On Retention of Urine in the Lying-in Female.—This condition generally sets in one or two days after parturition and, according to the cause, lasts from a few days to several weeks. Text-books devote but little consideration to the subject, ascribing it usually to vesical paralysis or spasm of the vesical sphincter. Mattei, and later Olshausen, mention as the chief cause the flexion which the urethra suddenly undergoes after parturition, and which also generally disappears after repeated application of the catheter. The resistance experienced on introducing the catheter is ascribed by Scanzoni, Winckel, and others, to spasmodic contraction of the bladder. Olshausen, in support of his view, mentions the analogous condition after tapping of ovarian cysts from the gravitation of the sac also drawing the bladder down with it. In the non-pregnant condition, the course of the urethra is almost in a straight line back and upward toward the bladder, curving but slightly forward just before its junction with it. The bladder is covered by the pubis, and only when full rises up to the linea alba. Its perpendicular axis forms an open right angle with the urethra forward. The lower portions of the bladder always preserve the same relation. During pregnancy the bladder rises with the uterus, and assumes the shape of a flat oval. The vesical neck becomes stretched, whereby the urethra assumes a semicircular form. During the descent of the presenting part of the child the upper half of the urethral curve is effaced and pressed against the pubis, while the lower half, pressed downward, forms a much smaller circle. Thus the urethra gradually undergoes flexion, and only a soft, flexible catheter is passable. Dr. Engel believed that this flexion was not the only cause for the retention, but that various traumatisms, such as contusions of the urethra, injuries of meatus, etc., might also be of influence. As in the majority of cases the pressure exerted during labor lasted but a short time, this cause did not seem sufficient. His theory is that the more or less inflammatory condition of the genital parts is transmitted to the urethra, and possibly also to the bladder. In 212 cases of retention in lying-in females, it was found that in 28 cases traumatisms had occurred near the urethra, in 3 cases at the bulb, in 16 between the urethra and perinæum, in 103 perinæal ruptures, in 10 cases condylomata and syphilitic ulcerations; 90 per cent. of cases, therefore, in which there seemed to be cause and effect. In multipara such injuries are rare, and perineal ruptures occur in a ratio of 4 per cent. In 725 multipara, Engel was obliged to apply the catheter only 64 times. In addition to the traumatic cause, nervous irritation during parturition may also be a cause in single cases.—(*Supplement to Med.-Chir. Centralblatt*, 1878.) E. F.

PATHOLOGY.

Atheromatous Degeneration of Arteries.—Gubler has found in his examinations that, in cities, the well-to-do residents retain their arteries in a soft and elastic condition up to the sixtieth year. He maintains that the toxical effect of alcohol cannot be looked upon as a cause of atheroma, although it is not without influence on the process of arterial calcification. The cause of atheroma, as Gubler maintains, lies in the superabundant composition of the articles of nourishment in mineral substances (phosphates, carbonates, etc.), and in the favorable conditions for the deposit of lime from the blood into the meshes of the middle coat. This view of Gubler is confirmed by various facts. Thus, the Trappists, who are exclusively vegetarians, show this degeneration at a very early period. In regions where the soil contains much lime, or where the water is surcharged with earthy salts, such degeneration has been observed to occur more frequently, and at earlier periods of life, than when such is not the case. At later periods of life, atheromatous degeneration is observed in a community living almost exclusively on animal food, when drinking-water shows a want of earthy salts, and when the soil is made up of quartz instead of lime.—(*Bull. de la Soc. Méd. Publ.*; *Med.-Chir. Centrlb.*, 1878.)

THEORY AND PRACTICE.

Case of Polyuria without Polydipsia.—Ter-Grigoricenz reports the case of a man, fifty-three years old, who, after the long-continued abuse of alcoholic liquors, observed an enormous increase in the amount of urine passed. Three months later cough set in, and, in spite of good appetite, the patient rapidly emaciated. There was no fever nor night-sweats. Thoracic examination revealed dullness and dry *râles* at the upper margin of the lower lobe of the left lung; in the right, increased vesicular breathing and crepitant *râles.* Liver and spleen were enlarged and tender. At times, after two or three weeks, the polyuria disappeared, the amount of urine being less than the normal amount, and then suddenly again increased. The average amount of urine while there was polyuria was 4,500 grammes, specific gravity of 1,005, contained neither albumen nor sugar, and had a slightly acid reaction. There was no increase of thirst. It was estimated by close calculation that the patient at most swallowed 2,680 grammes of water. Together with say one-half the daily average of watery secretion from lungs and skin, according to Pettenkofer and Voit (912 grammes), 456 grammes, the average daily secretion from kidneys, lungs, and skin amounted to 4,956 grammes. The author reports this case in support of the often doubted fact that polyuria may occur without polydipsia, and believes, with Trousseau and Niemeyer, that the formation of water in the organism is due to the large quantity of hydrocarbons taken by the patient in the form of solid food (polyphagia). The cause having been removed (abuse of alcohol), the patient recovered without treatment.—(*Med.-Chir. Centralblatt*, May, 1878.) E. F.

Miscellany.

The Death List.—The following additional names are reported of physicians who have fallen victims to yellow-fever in the discharge of their professional duties: Dr. T. W. Meares, volunteer from Nashville, Tenn.; Dr. J. B. Hicks, volunteer from Murfreesboro, Tenn.; Dr. J. S. Bankson, volunteer from Stevenson, Ala.; Dr. R. H. Tate, volunteer from Cincinnati, Ohio; Dr. W. J. Armstrong, of Memphis; Dr. Edward Tandy Easley, volunteer from Little Rock, Ark.; Dr. William R. Lowry, of Memphis; Dr. R. F. Brown, Secretary of Board of Health; Dr. J. F. Sample, volunteer from Austin, Miss.; Dr. Newman, Dr. M. Blackburn, Dr. Birdsong, Dr. H. A. Swasey, Dr. Joseph H. Prewitt, Dr. Stafford, Dr. V. F. P. Alexander, Dr. J. G. Strobridge, Dr. W. D. Spratt. Total, with those previously reported, eighty-one.

American Gynæcological Society.—The third annual meeting of this Society, held in Philadelphia, September 25th, 26th, and 27th, was largely attended. The following officers were elected for the ensuing year: President, Dr. T. G. Thomas, of New York; Vice-Presidents, Drs. D. H. Storer, of Boston, and H. P. C. Wilson, of Baltimore; Council, Drs. T. A.

Emmett, of New York, A. H. Smith, of Philadelphia, John Byrne, of Brooklyn, G. J. Englemann, of St. Louis; Secretary, Dr. J. R. Chadwick, of Boston; Treasurer, Dr. P. F. Mundé, of New York. It was decided that the next meeting be in Baltimore, on the third Wednesday of September, 1879.

Canada Medical Association.—The eleventh annual meeting was held in Hamilton, September 11th and 12th, Dr. Joseph Workman in the chair. The following officers were elected for the ensuing year: Dr. Macdonald, of Hamilton, President; Dr. A. H. David, of Montreal, Secretary; Dr. E. Robillard, of Montreal, Treasurer. Vice-Presidents: Drs. Bucke, Howard, Kerr, and George Hamilton. Secretaries: Drs. Burgess, Osler, Lawson, and L. Allison. The next meeting will be held in London, Ontario, on the first Wednesday in September, 1879.

Appointments, Honors, etc.—Prof. Gusserow, of Strasburg, has been placed in charge of the midwifery department of Charité Hospital, Berlin, and Dr. Fasbender has been appointed Professor Adjunct of Obstetrics at Berlin. Dr. George Wegner, Langenbeck's assistant, has been made director of the Municipal Hospital at Stettin.

Dr. S. B. St. John, late surgeon to the New York Eye and Ear Infirmary, has settled in Hartford, Conn., where he succeeds Dr. Bowen in the practice of ophthalmology and otology.

The Yellow-Fever Committee.—The Surgeon-General of the Marine Hospital service has organized a commission to gather and record all important facts, relating to the beginning and spread of the present epidemic, especially with a view to the prevention of yellow-fever. The commission is composed of Prof. Bemiss, of New Orleans, Dr. Cochran, of Mobile, and Prof. Howard, of Baltimore. Work has already been begun in New Orleans.

The British Medical Association.—The number of members in this flourishing society is seven thousand five hundred, and the annual receipts amount to fifty-five thousand dollars.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from September 14 *to October* 13, 1878.

Randolph, J. F., Major and Surgeon.—Granted leave of absence for six months on account of sickness, to take effect October 1, 1878. S. O. 207, A. G. O., September 25, 1878.

Greenleaf, C. R., Major and Surgeon.—Assigned to duty at Fort Shaw, Montana Territory. S. O. 108, Department of Dakota, September 16, 1878.

Hubbard, V. B., Captain and Assistant Surgeon.—Assigned to duty at Angel Island, California. S. O. 138, Division of the Pacific and Department of California, September 10, 1878.

Whitehead, W. E., Captain and Assistant Surgeon.—Relieved from duty in Department of the Missouri, and to report by letter to the Surgeon-General. S. O. 218, A. G. O., October 10, 1878.

Heizmann, C. L., Captain and Assistant Surgeon.—Assigned to duty at Fort Vancouver, Wyoming Territory. S. O. 115, Department of the Columbia, September 14, 1878.

Fitzgerald, J. A., Captain and Assistant Surgeon.—When relieved to comply with S. O. 176, C. S., A. G. O., in his case. S. O. 108, Department of the Columbia, September 2, 1878.

Steinmetz, W. R., Captain and Assistant Surgeon.—Relieved from duty in Department of the Missouri, and, upon expiration of his present leave of absence, to report by letter to the Surgeon-General. S. O. 218, C. S., A. G. O.

Havard, V., First Lieutenant and Assistant Surgeon.—To report in person to the Commanding General, Department of the South, for assignment to duty. S. O. 218, C. S., A. G. O.

Semig, B. G., First Lieutenant and Assistant Surgeon.—Relieved from duty in Division of the Pacific, to proceed to New York City, and on arrival, report by letter to the Surgeon-General. S. O. 217, A. G. O., October 9, 1878.

Hall, Wm. R., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Boise, Idaho Territory, relieving Assistant Surgeon Fitzgerald. S. O. 108, C. S., Department of the Columbia.

Cuningham, T. A., First Lieutenant and Assistant Surgeon.—Leave of absence extended one month. S. O. 81, Division of the Missouri, October 8, 1878.

Gray, W. W., First Lieutenant and Assistant Surgeon.—Assigned to duty at Fort Colville, Wyoming Territory. S. O. 115, C. S., Department of the Columbia.

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Original Communications.

Art. I.—*The Botanical Relations*[1] *of Trichophyton tonsurans.* By I. Edmondson Atkinson, M. D., of Baltimore.

The results obtained by those who have made the life histories of the fungous growths, which are the exciting causes of certain diseases of the skin of man and some other mammals, the subject of study, have differed so widely that one is impelled to adopt one of two conclusions: either there exists in these forms of vegetable life a polymorphism exceeding the most extravagant claims of Hallier, or else the methods of investigation adopted by these observers have been sadly inaccurate and exposed to all sorts of adventitious influences. With the best mycologists of the day the opinion prevails that, while a limited polymorphism may be admitted, one may reject, without hesitation, those theories which would embrace in one genetic series the different fungi to which the diseases under consideration have been attributed. On the other hand, a moment's reflection must make it evident that the methods of cultivation employed have been open to the gravest objections, and the cultivations themselves exposed to the most varied contaminations. Results obtained from cultivation upon such nutritive soils as sliced vegetables, potatoes, carrots, apples, and the like, must prove absolutely untrustworthy, since it is a matter of every-day experience that all such preparations will inevitably become the hosts of multitudes of spores, which rapidly invade, conceal, and overwhelm the less vigorous spores planted upon them. No accurate worker would, to-day, dream of obtaining truthful results through such unscientific methods.

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[1] Read before the American Dermatological Association, at Saratoga, August 28, 1878.

A much more reliable process than the foregoing has been used by certain mycologists, who claim a high degree of purity for the cultivations conducted by it. According to Brefeld, this method consists in sowing a single spore in a drop of a given nutritive fluid, upon a glass slide resting upon a metallic plate, under a bell-glass, and protected from external influences by having the latter resting in water. ("Botanische Untersuchungen über Schimmelpilze," Heft 1, p. 5). Minute precautions should be used to thoroughly purify all the materials employed. This plan offers manifest advantages over the previous one, but the liability to contamination still remains excessive; for, not only is it impossible to secure the necessary purity of the atmosphere of the bell-glass, but the frequent removals of the latter for purposes of inspection and of supplying the losses of nutrient fluid by evaporation must inevitably lead to the lodgment of adventitious spores of yeast, mould and bacteria, and the like, circumstances, when not fatally interfering with the growth of the special fungus, affording great danger of confounding the latter with intruders of widely different nature.

Desiring to make some study of these parasitic fungi, and being conscious of the imperfections of the foregoing methods, I fortunately made known my difficulties to Prof. H. Newell Martin (in whose laboratory, at the Johns Hopkins University, the more important of my researches have been followed), who suggested to me the method employed by MM. Van Tieghem and Le Monnier in their observations upon the Mucorini, published in the 17th volume of the "Annales des Sciences Naturelles" (pp. 261–399). His plan may be called the cell culture, and, briefly described, is as follows: The cell is constructed by fastening with Canada balsam, upon a glass slide, a glass ring from four to five millimetres in height, and about fifteen millimetres in diameter. It should be ground flat upon its edges. A thin cover-glass, as thin as can be procured, of the diameter of the ring, forms the roof of the cell. When it is to be used, a drop of nutritive fluid is placed upon the cover-glass, and into this drop the fungus is sown. The cover-glass is then placed upon the ring, with the drop upon its under-surface, a drop of boiled distilled water having been previously placed in the bottom of the cell, to secure the proper atmospheric moisture. The cover-glass is kept in position and protected from the external air by a few minute drops of oil. In pursuing this method it is, of course, necessary to observe all possible precautions to prevent the introduction of foreign spores. The nutritive fluid, the distilled water, and the oil, should be boiled in test-tubes, stoppered with cotton wool and only opened at the instant of using. I have adopted the plan of drawing these fluids into fine pipettes previously subjected to an extreme heat. In this way a drop of the required minuteness can be obtained quite uncontaminated. The cell and cover-glass must be scrupulously clean and all accessory apparatus thoroughly purified. When finished, the cells should be placed side by side in a box, half filled with moist sand, and protected by a lid or a piece of glass. In the winter it will be advisable to keep the box in a water bath at a temperature of from 20° C. to 30° C., or upon a mantel-piece over a fire. In summer no such precautions are necessary.

The cell may now be examined under the microscope, and every part of the drop observed. With thin cover-glasses quite powerful objectives can be used. In my investigations a Zeiss's D objective was most conveniently employed, although it was possible to use with profit the F objective of the same maker. The advantage of the greater amplification of the latter objective, however, was more than counterbalanced by the danger of breaking the cover-glass in obeying the almost irresistible impulse to peer as deeply as possible into the cell. One of Grunow's $\frac{1}{8}''$ objectives of 110° angular aperture was also easily used. With the D objective and No. 4 eyepiece, an amplification of 400 diameters was attained.

I have employed as nutrient fluids Pasteur's fluid, with and without sugar, distilled water, orange-juice, decoction of horse-dung, aqueous humor, gelatine, currant-jelly, and meat infusion. Of these, orange-juice has seemed the most suitable, although I have succeeded with Pasteur's fluids. The horse-dung decoction, so highly recommended by Brefeld, I have found so extravagantly disposed to the development of bacteria that it has been useless in my observations. The acidulated solutions were preferable, on account of their freedom from bacteria.

It must at once be admitted that it is impossible for strange germs to find their way into a cell after its completion under the above-mentioned precautions, unless it be by thrusting their hyphæ between the cover-glass and cell, a proceeding that can easily be detected. It remains to be seen to what extent the culture can be kept pure during the moments occupied in the preparation of the cell. It shall be my endeavor to show this later.

The fungus I selected for cultivation was "Trichophyton tonsurans," taken at different times from the heads of two light-haired boys. After thoroughly washing the affected surfaces, I extracted very short stumps of hairs, with as much of the bulb, or lower part of the shaft, as possible, this being a procedure of much difficulty, since in a large majority of cases the hairs break off outside of the follicular orifices. I selected portions of hairs rather than single spores, partly because it has been with me the rarest occurrence to see a spore sprouting apart from its habitat, the hair; partly on account of the infinitely slender chances of selecting a spore capable of budding in cell cultivation; but chiefly, because the style of germination in a successful cultivation has been so distinctively characteristic, that I have considered the results obtained sufficiently convincing.

It must not be supposed, however, that germination occurs readily in these cells. On the contrary, probably on account of the restricted air-supply, it is, by far, the usual experience to find the cell remain absolutely quiescent, the homogeneous and apparently perfect spores remaining for weeks unchanged, finally to slowly disintegrate. As Van

Tieghem and Le Monnier have remarked, the causes of failure in cell cultures are very different, and by no means obvious. This much is certain: that a large proportion of cells, with hairs full of spores in apparently perfect condition and remaining entirely free from adventitious growth, and kept under observation for many days, show not the smallest sign of development. This indisposition to germinate is not common to all fungous forms when sown in cells, as is proved by the facility with which penicillium and aspergillus shoot out their vigorous hyphæ, when their spores have accidentally or designedly been introduced; and especially by the success with which MM. Van Tieghem and Le Monnier cultivated the various forms of mucor, obtaining even the sexual reproductive process, a development that Brefeld has never observed in fluid cultivations.

Where, however, a successful cultivation is secured, never does a single nor even do a few hyphæ appear; but there is invariably a multitudinous and simultaneous outburst of growth of hundreds of spores, indicating that the conditions of life and development depend upon some special appropriateness of the cell and of the fungus.

The history of a successful cultivation, then, is as follows:

A short, broken hair, extracted with as much as possible of the part within the follicle, containing the more active spores, is secured, and with all practicable dispatch is sown in the nutrient fluid, and the cell completed by laying on the cover-glass. In from twenty-four to thirty-six hours, more usually the latter period, but frequently only after several days, signs of vigorous growth will become evident. The spore mass will be seen to exceed its boundaries of the day before, projecting in a single or double rows or more beyond the hair, both in the direction of its axis and laterally. These spores, whose nutriment has been abundantly supplied, will sometimes be observed to swell to many times their original proportions, attaining sometimes a diameter of .0222 millimetre. (*See* Fig. 2, *b*.) This process is not often observed in its fullest degree, and ceases as soon as hyphæ begin to be freely thrown out. I have been unable to decide whether the insignificant increase in the area occupied by the spore mass is due

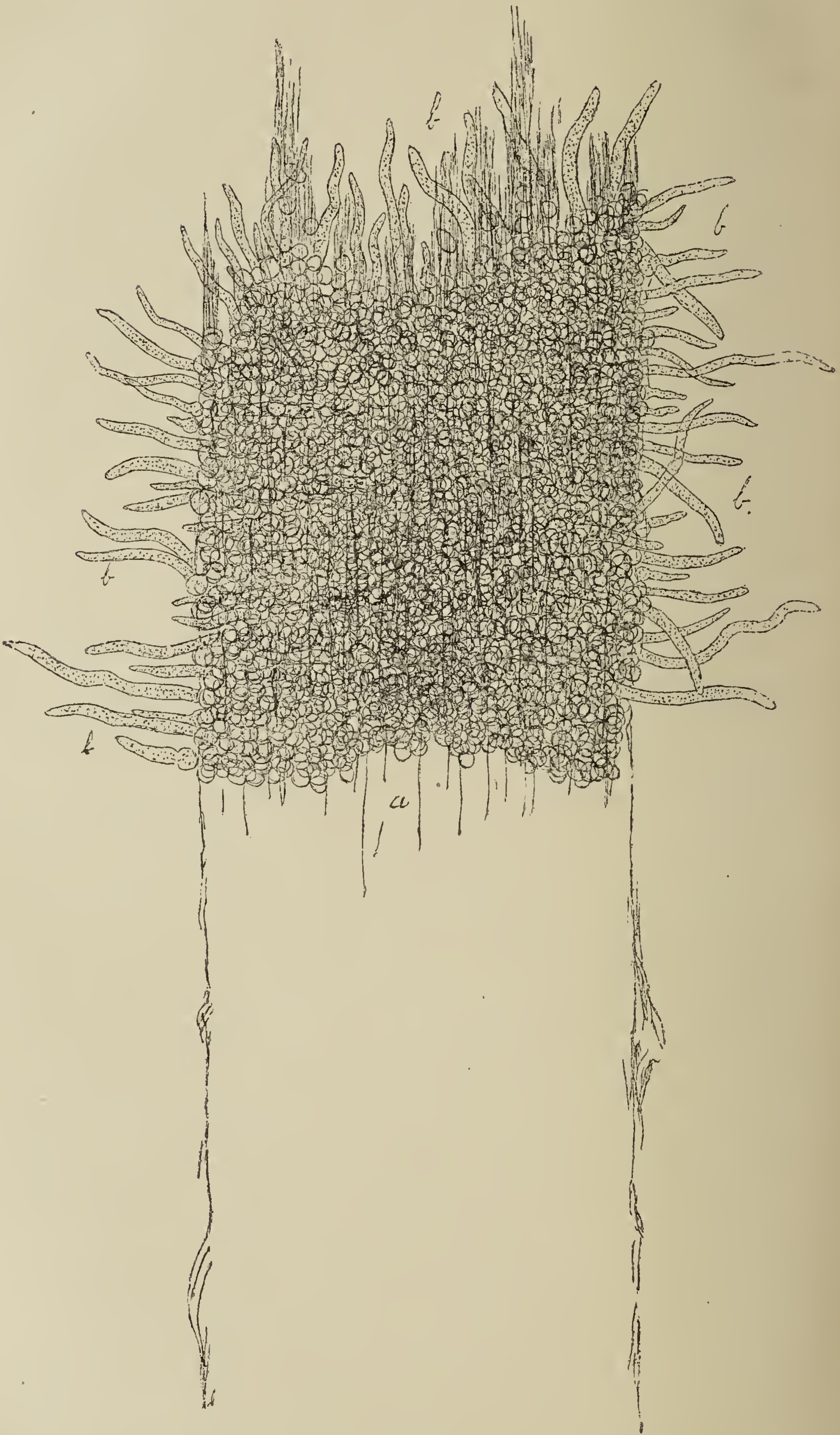

Fig. 1.

to this swelling alone, or to an actual increase in the number of spores by a simple budding, torula-like process, as well. I have not detected the latter in cultivation, but am satisfied that it occurs, since in the growth of the fungus in the hair, just after detachment, many partially budded spores are visible, but their growth seems to be arrested by their transference to the culture fluid. Spores which have swollen to the larger diameter undergo no further development, or throw out short hyphæ, which remain unbranched and whose growth soon becomes arrested. Almost simultaneously with this swelling of particular spores, or even, perhaps, without this having occurred, hyphæ may be seen shooting out from the hair-shaft in hundreds (Fig. 1, *b*), the spores from which they spring, as well as those which have undergone no change, having a diameter varying from .002 millimetre to .005 millimetre for the globular ones; and for the oval or oblong ones from .004 millimetre to .0045 millimetre in breadth, and from .007 millimetre to .01 in length. The hyphæ have at the same time an average diameter of .0025 millimetre or more, and grow, as yet, without dividing and without forming septa. They spring, medusa-like, from the hair, and may occasionally be traced to their proper spores, which may begin to be slightly vacuolated.

The abundance of nutriment being favorable to the formation of a mycelium, the hyphæ now freely branch, and by the third day many have become septate, the segments becoming frequently irregularly bulbous or forming globular swellings (*see* Fig. 2) of very much increased size, .015 of a millimetre or more in diameter. These conditions may be observed exhibited in Fig. 2. By this time, the mycelium begins to form a network of greater or less density, and already at numerous points, both lateral and terminal, short hyphæ have been thrown out, bearing at their terminations globose bodies with granular contents, occasionally vacuolated, and which quickly become separated from the hyphæ by partitions directly transverse to the hyphæ and presenting sporangial characters (*see* Fig. 2, *d*). Most of these sporangium-bearing hyphæ are devoid of septa until the formation of the one representing the columella, but the mycelium from which they arise possesses septa at tolerably wide intervals (*see* Fig. 2). By about the fifth day the hyphæ and mycelium become freely vacuolated and the sporangia begin to exhibit little aggregations of protoplasm, the future

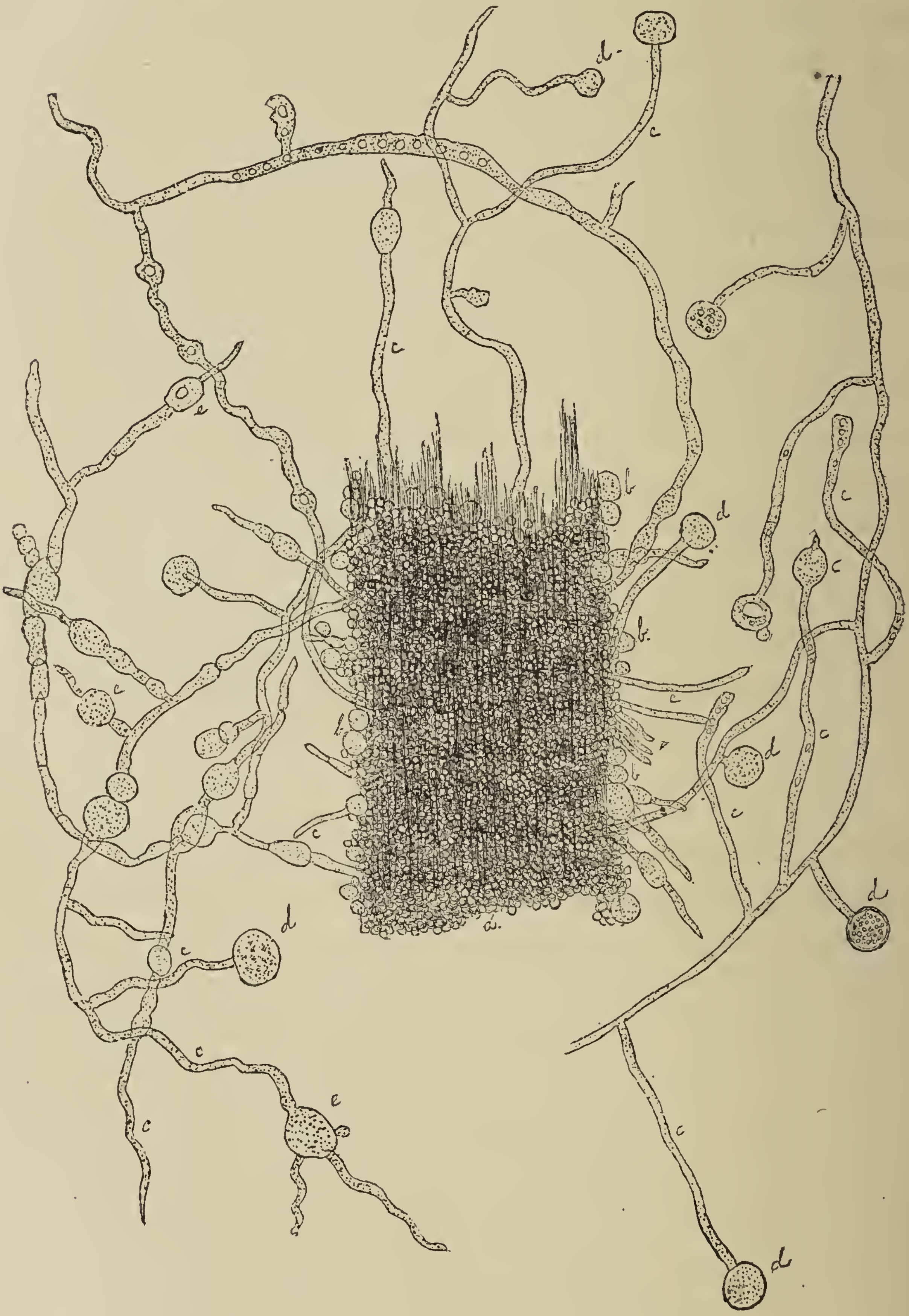

Fig. 2.

spores. The septa between them, however, and the hyphæ remain quite flat. These sporangia may attain an extreme diameter of .018 millimetre. Here and there the hyphæ show a tendency to break up into small segments (*see* Fig. 3, B), a process, however, which I have never seen carried to the extremity of spore or brood-cell formation. Occasionally, also, instead of retaining their sporangial characters, the sporangia, as if diverted from their original purpose, develop buds at one or more points of their surfaces, which in their turn become hyphæ. (*See* Figs. 2 and 3, *e*.)

With abundance of nutriment, the tendency of the hyphæ to grow into a closely meshed mycelium is very marked, and but comparatively few distinctive reproductive organs are developed. It is in the underfed cultivations, in those where the actively growing hyphæ soon exhaust the fluid surrounding them and where the remaining vigor is diverted to the formation of reproductive organs, that the growth is followed with most facility and most decided results. In such a cell, while the swelling of the spores is less noticeable, the hyphæ are thrown out precisely as when more abundantly nourished, and for a limited period (thirty-six to forty-eight hours) pursue a similar course. Beyond this point they become less vigorous, their branching becomes arrested, and their advancing growth ceases. Septa usually, though not always, appear in the hyphæ, which sometimes shows bulbous irregularities, as if about to form jointed spores. About the third day some of the hyphæ show sporangium-like enlargements (Fig. 3, *d*), both terminal and lateral, in which vacuoles appear, and which exhibit no columellæ or partitions from the hyphæ, in which by this time vacuoles have become abundant. In instances most favorable to observation, the hyphæ spring directly into the formation of sporangia without a single branching and quite often without the formation of septa, and after very insignificant growth, just as the sexually produced zygospores habitually do. From this point their growth is somewhat indefinite and is evidently controlled by conditions of nutrition. A very few sporangia (Fig. 3, *g*) develop columellæ, but are apt to form no spores; others, with or without septa, form a few diminutive spores; others again, after forming sporangial enlargements, may develop buds which either grow as ordinary hyphæ or swell into sporangial forms, like beads strung together (Fig. 3, *e*, *f*; Fig. 2, *e*). In the very few instances where this reproductive process reaches completion, the wall of

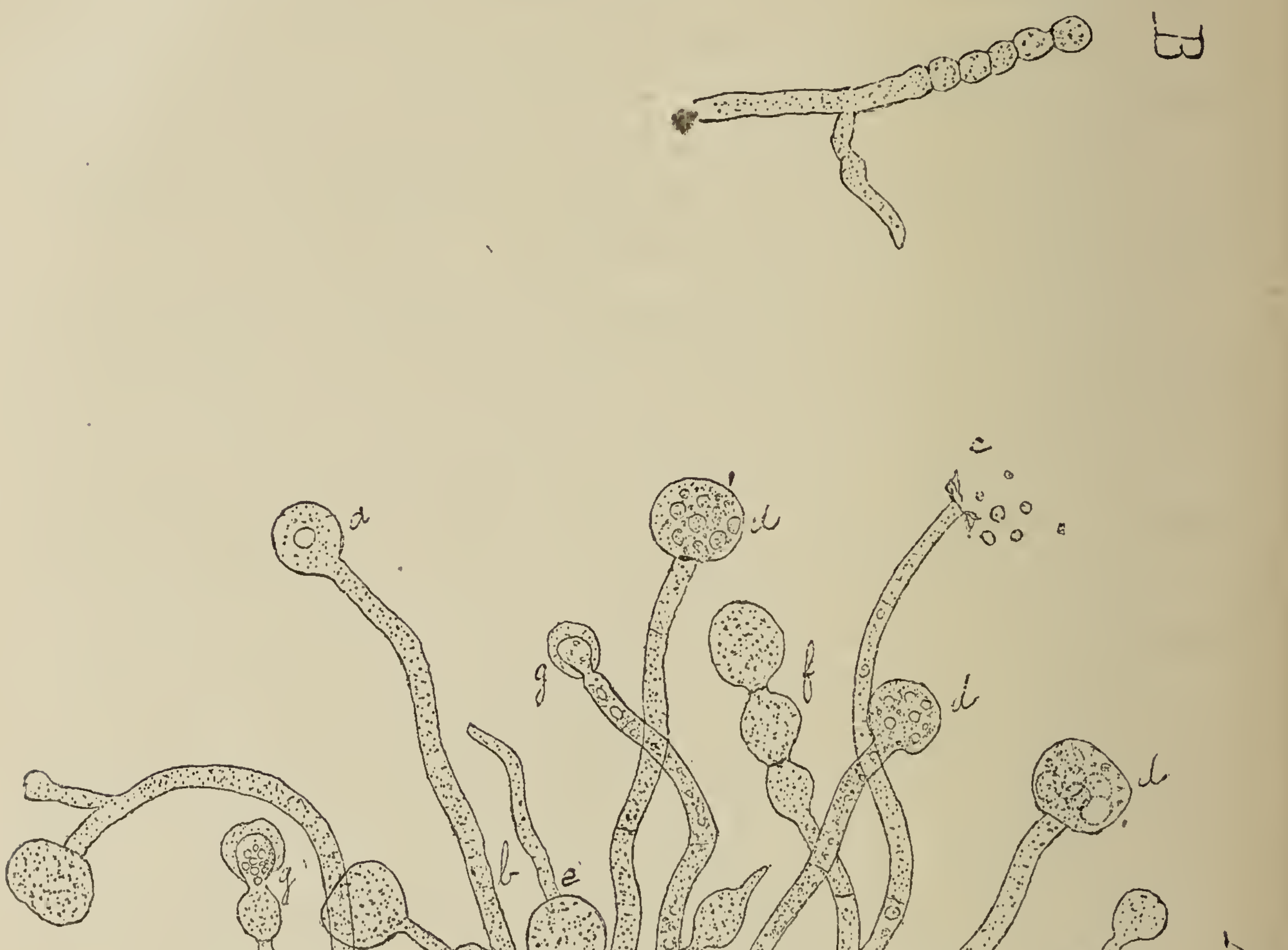

Fig. 3.

the sporangium bursts and four or five minute spores are released (Fig. 3, *c*). Here all signs of development are at an end, and the cell remains unchanged for an indefinite period.

The sporangia show by their varying forms that they have not acquired their full and perfect maturity, and that their development is controlled by the circumstances of their position, so that they betray a singular indecision, so to speak, in their final course.

My experience has not enabled me to speak positively concerning the formation of chlamydo-spores, or spores developed within the hyphæ, as described by Van Tieghem and Le Monnier, in their account of the mucors, nor have I detected any disposition toward the sexual union of hyphæ for the formation of zygospores.

A number of healthy hairs, removed from the heads of the children furnishing the fungus for my experiments, have been subjected to the same methods of cultivation, and have uniformly yielded a negative result.

Having thus followed the history of this fungus throughout its several stages, it will be proper, at this time, to ascertain the degree of confidence to be placed in the method of cultivation employed.

It is sufficiently evident that, after the completion of the cell, no contamination by foreign germs is to be feared. In the preparation of the cell, however, such accidents are liable to happen, and the unwelcome intruders are not slow to reveal themselves. The most frequent foreign germs are those of bacteria, which, however, are but little disposed to invade acidulated fluids. Penicillium, also, not unfrequently appears, but can always be traced, either by its hyphæ penetrating under the cover-glass, or radiating from a centre either in the surrounding fluid or at some point of the hair-shaft, and affording, in its style of growth, a striking contrast to the multitudinous, simultaneous outburst of activity from the hosts of trichophyton spores, along the whole shaft. In not a single instance where germination took place in the medusa-like manner I have described and figured, was there observed any other form of fructification than the sporangial one. Occasionally, during the growth of the hyphæ, a segmentation would occur indicating but not completing a breaking-up into torula-like chains of spores, beginning at the free end, the so-called brood-cell formation. Grawitz (*Virchow's Archiv*, August, 1877) describes as derived from his slide and mass culture of achorion Schönleinii, trichophyton tonsurans, and microsporon furfur, a similar segmentation, and has concluded that these several forms are derivatives of oidium lactis, whose aërial fructification occurs in a somewhat similar centripetal segmentation. His drawings suggest, however, the torula-like brood-cell segmentations of other kinds of moulds.

It is of especial significance that, in cells whose conditions offer no obstacle to the development of ordinary mould fungus, the uniform result was constantly obtained, where the spores filling the hair germinated. And it is also of significance that, where this style of germination did not occur, the spores remained for weeks absolutely unchanged. It must be remarked, however, that the "trichophyton" does not germinate in cell culture with anything like the readiness of penicillium, aspergillus, or of ordinary mucor, or that itself displays in slide culture, where hyphæ are freely thrown out, but generally come to naught, on account of the unlimited growth of strange spores and bacteria. Indeed, although I have been able to follow in this slide culture the hyphal growth as far as the formation of sporangia, it has only been through my previous experience with cell culture that I have been able to distinguish the true parasite from the several other forms of fungus visible.

What the agencies are that prevent the free development of this fungus in cell cultivations, I am quite unable to say, although it is probable that the restricted supply of air has some influence. But it is a fact that successful results have been obtained in a very small minority of my cells, the vastly larger number remaining absolutely quiescent. This difficulty with which germination takes place is the only serious drawback to the method employed, which is one easily practised, readily available, guaranteeing the purity of the cultivation after the sowing; and, with scrupulous observance of all precautions in the preparations of the cells, their entire purity can be secured in a surprisingly large proportion. With a proper observance of details, and a patient persistence in the face of many failures, I am confident that my own observations will find confirmation at the hands of other investigators.

There remains, finally, the task of assigning the fungus of tinea tonsurans to its appropriate systematic position.

As has already been remarked, I have been unable to determine positively whether the increased area occupied by the spore mass, after growth has begun, is the result of the swelling of the spores, or of a positive spore increase through budding as well. I am, however, strongly impelled to adopt the latter opinion. But it must be borne in mind that this torula-like mode of growth does not imply more than a form of resemblance, and by no means the ferment-producing powers of yeast, and may be observed in a number of fungi (De Bary, "Morph. und Physiolog. der Pilze," pp. 119 and 182). At all events, in the cultivation of "trichophyton," this process ceases very early, as soon, indeed, as the hyphæ begin to grow freely.

In a hair invaded by "trichophyton" examined just after removal from the scalp, there will almost always be observed a decided tendency toward the division of the mycelium or hyphæ into very short segments, which bear every evidence of ultimately forming spores. This process, which I have frequently seen indicated in cell cultivation, but which I have never observed carried to completion, finds a perfect analogy in one of the reproductive processes of one of the mucors, mucor mucedo. De Bary says (" Morph. und Physiolog. der Pilze," p. 179) that in old mycelium, or in such as has, through deficient nourishment, deprivation of air, or other untoward influences, the formation of spores interfered with, short cylindrical sections filled with homogeneous protoplasm are formed by the appearance of septa, and become spores of a cylindrical, oval, or globular form. Doubtless, under more favorable conditions, this brood-cell formation is carried to its completion, in the development of trichophyton tonsurans; but for the present I must restrict myself to the statement that, in cell cultivations, this tendency is shown to be pretty constantly present. (*See* Fig. 3.)

In assigning "trichophyton" to the mucors, it will first be necessary to indicate some points in which the growth of the former differs from that usually ascribed to the latter. It will be observed that "trichophyton" departs from that feature characteristic of the family mucor, a unicellular, unsegmented condition of the hyphæ and mycelium previous to the formation of sporangia. This rule admits of some modification, however, since septa may appear when the protoplasmic contents become impoverished shortly before the sporangia begin to form. It must be remembered, moreover, that the formation of brood-cells requires a process of segmentation incompatible with an unvarying unicellular presporangial condition of the fungus, and depends usually upon unnatural and perverted influences. In slide cultures of "trichophyton," the hyphæ branch and attain a considerable length without the formation of septa; but these usually appear some time previous to the sporangia. In the cell cultivations, the septa appear earlier, although, where the hyphæ proceed immediately to the formation of sporangia, the septa may be absent.

Another point to be considered is the departure of this fungus from the type of sporangium development of mucor in the arrangement of the columella, which should project into the cavity of the sporangium in a conical shape. This may also, however, be regarded as a character subject to the altering effects of special influences. It will be observed that, of the sporangia represented in the drawings (Figs. 2 and 3), the greater number present only the straight septa dividing the sporangia from the hyphæ, others seeming to have been arrested in their growth before reaching this stage. Brefeld ("Botanische Untersuchungen über Schimmelpilze," Heft 11, p. 20) says that "sporangia starved or injured in their development or attacked by parasites vary greatly in size, and gradually lose the typical characters of mucor. The columella loses it shape, becomes smaller, and finally is entirely absent." The spores, according to Brefeld, may also diminish from their normal size, measuring sometimes as little as .0033 millimetre. It would seem, therefore, that the normal characters of mucor may be considerably altered by various disturbing influences; and, with the knowledge thus gained, it seems to me that a fungus presenting the features displayed in my cell cultivations may without hesitation be referred to the mucors.

In conclusion, I desire to express my sense of the imperfections of this paper, and my regret that I have been able to bring but a limited mycological experience to its preparation. I feel confident, however, that my observations as described and figured are correct, and that they will be confirmed by other investigators, employing the same methods of research.

The granular markings of the protoplasm in the illustration are rather too coarse.

Art. II.—*Malpositions of the Ureters.* By W. H. Baker, M. D., Boston, Instructor in Gynæcology, Medical Department of Harvard University.

In searching our different anatomical works I have been surprised to see how few refer to abnormalities of the ureters in any way except to mention the fact that cases of double ureters are sometimes met with, and I have failed to find in any such book a description of malpositions of the ureters where the bladder was present, and in any other than a rudimentary condition, except in one the fact is noted that the ureters sometimes terminate in a *cul-de-sac.* Thus in "Mickel's Anatomy," Volume III., page 385, we find: "The congenital anomalies of the ureters are: first, their absence; second, their imperforations in one or several points, from an obstacle; third, their plurality."

Again, in "Andral's Anatomy," Volume II., page 394, under head of Diseases of the Urinary Apparatus, this: "We sometimes observe cases of malformation of the ureters. Thus, they have been found united by a transverse duct. Again, two ureters may pass from the same kidney, and either open separately into the bladder, or unite before entering it. The latter is generally the case. When the bladder is wanting, or exists only in a rudimentary state, the ureters terminate in some other part. Thus, they have been known in such cases to open: 1, into the umbilicus; 2, the rectum; 3, the vagina; 4, the urethra; and nearly the same facts are mentioned in the *Dublin Dissector.* "Cruveilhier's Anatomy," Volume I., refers to the subject in the following terms: "The ureter is generally single on each side, but sometimes double, and that under very different circumstances; for example, when the two kidneys are united into one, a double ureter is almost invariably found; and secondly, when, there being two kidneys, one of them is divided into very distinct portions. In the latter case, the two ureters are often united into one, after a course of a few inches.

In this field of anatomical knowledge, where comparatively so little has been published, the report of cases which shall add to the scanty literature of this subject becomes both interesting and instructive. It is with this object in view that the following case is presented.

May 25, 1876, by the kindness of Dr. H. J. Bigelow, I was asked to see Miss C——, who complained of frequent micturition unaccompanied by pain. She had twice been examined under ether, an acute anteflexion of the body of the uterus diagnosticated, and a pessary adjusted. The urine had been analyzed, but failed to show anything abnormal or irritating in its composition.

The pessary being removed, the position of anteflexion was verified by the passage of the uterine probe, which also showed the presence of a slight endometritis. There being some vaginal irritation, it was deemed advisable to discontinue the use of any mechanical appliance for a time, and substitute the vaginal injections of hot water twice a day. The patient was away through the summer, but returned to the city for treatment in November. On obtaining a more careful history of the case, it was found that the patient was twenty-two years of age, and had always lived in Massachusetts, was highly educated and accomplished, that the family history was very good, and that she had never had any severe sickness. Her general health was excellent, and she complained of nothing but the very frequent micturition, which had annoyed her for several years, though no exact data could be given, and had increased very much within two years. The malposition of the uterus gave rise to absolutely no symptoms except the vesical intolerance. The menstruation was perfectly regular and normal.

For the next two months attempts were made with various pessaries to lift the body of the uterus off the bladder, but Graily Hewitt's, Thomas's, and others all failed, inasmuch as the portion of the instrument which raised the anterior vaginal wall against the body of the uterus seemed to occasion as much vesical irritation as the body of the uterus itself.

A pessary was finally devised consisting of a stem which locked into a modification of a Hodge, which corrected the anteflexion very satisfactorily. It was worn with comfort, and could be removed at pleasure by the patient. But after being used for some time it was found that, although the uterus was in perfect position, yet the vesical symptoms were still present, and as annoying as ever, so that we were now convinced that some other cause than the malposition of the uterus must be sought, to account for the great inconvenience from which the patient suffered. The urine was again analyzed with a negative result, and a careful exploration of the bladder made with a like unsatisfactory effect.

The history of the case was again reviewed, this time with all the additional light which the mother could give. This revealed the fact that, every few minutes feeling a slight involuntary flow of urine, the desire was at once felt to relieve the bladder, although, if so situated that it could not be gratified, she was able to control the sensation for an hour or an hour and a half, being subjected all the while to the constant dribbling of the urine, which kept her clothes continually wet. The mother now remembered that when the patient was a child her clothes were constantly wet, and an aunt, who had the charge of her for five years when the mother was absent, gave a similar account, adding that she thought it "merely a weakness which she would outgrow." In making another examination to see if there was any want of tone in the neck of the bladder to account for the incontinence, a drop of urine was seen to well up from a minute hole, two lines below and to the left of the lower angle of the meatus urinarius. A lachrymal probe was the largest that would pass through this orifice, but once through the external opening the canal seemed to be spacious enough, and conducted the probe two and a half inches in the vesico-vaginal septum, to the left *cul-de-sac*, but with a sound in the bladder failed to find any established communication with that viscus.

January 26, 1877.—Dr. Bigelow saw the patient with me in consultation, but failed to find any fistulous opening into the bladder, or to pass the probe beyond the two and a half inches.

February 15th.—The bladder was filled with milk and water, but none of it returned through the newly-found channel; on the contrary, there was constantly being discharged, drop by drop, clear urine. About a fluid drachm of it was thus collected in a test-tube, while the bladder was distended with the milk and water, which was submitted to Dr. E. G. Cutler for analysis, and proved to be urine by the formation of nitrate of urea crystals. The length of the urethra was carefully taken, and found to be one inch and a half. We had evidently direct communication with a ureter (probably the left), and, from the fact of our inability to probe more than two and a half inches, concluded that we had to deal with a fistula from the ureter, which might have occurred as the result of an abscess in early life, although we could obtain no history of any symptom which would tend to substantiate such a theory.

May 17th.—The patient was etherized; and, assisted by Drs. Bush and Tuttle, I proceeded to close the supposed fistula. With a probe in this canal, a Sims speculum exposing the vagina, an incision was made through the vaginal membrane down upon the probe, one inch and a half from the meatus, and it was then found that, instead of cutting into a fistulous tract, we had opened a ureter, from which the urine now flowed drop by drop as it had from the minute orifice by the side of the meatus. A uterine probe could now be passed seven inches, which was the length of the instrument, up the course of the left ureter. From the point of incision this ureter was now easily dissected out, which was done for a little more than an inch inward and a portion of the way outward. It was then decided to turn the course of this ureter into the bladder as near the point where it should have gone as possible. Dissecting up the vaginal membrane to the left of the median line at a point one inch from the internal orifice of the urethra, the bladder was punctured, the ureter was then cut off, enough being left to go through the thickness of the bladder, that the tension might not be too great upon the ureter. The edge of the ureter was then stitched to the lining membrane of the bladder all around the incision through that viscus; the stitches used (being the only ones at hand) were strong cotton threads, which were cut off short and left to ulcerate into the bladder. The vaginal wound was then closed over the whole, the edges of its membrane being brought together by five silver sutures. A uterine probe then being passed through the urethra into the bladder, could be conducted several inches up the ureter. The clots being then washed out of the bladder, the patient was put to bed.

It is useless to prolong this history by a detail of the after-treatment, which consisted in keeping the bladder washed out two or three times a day, and the vagina morning and evening. The urine was drawn every four hours for several days, then every six hours, until the eighth day after the operation, when the silver sutures being removed, the line of union being perfect, she was allowed to pass the urine naturally. From

May 22d to May 29th, four of the short cotton stitches, coated with phosphatic deposit, were noticed in the water returned from the bladder, and it was judged that the two remaining had passed unobserved. She did not present an unfavorable symptom from the time of the operation, and was allowed to be up and about the room in two weeks, leaving the city for her home four days later, with instructions to return for an examination in about a month.

July 19th.—The patient reported entire relief from the incontinence of the urine, and the desire for micturition was felt only at intervals of five or six hours, the anteflexed body of the uterus, undoubtedly, having some effect to frequent this desire beyond the normal. On making the most careful examination, no moisture was discovered either at the old opening of the ureter, near the meatus, or at the point where the ureter was cut into through the vagina. I was unable, however, to pass the uterine probe through the urethra into the newly-formed orifice of the ureter, as had been done after the operation, while the patient was under ether, the reason of which may have been the diminished facility which the patient presented to the use of the probe without ether, or may have been from the contraction of the wound in the bladder to which the ureter was stitched.

Two points in the history of this case deserve especial notice:

1. The fact that before the operation, both Dr. Bigelow and myself were unable to pass the probe into the ureter more than two and a half inches; whereas, as soon as the ureter was cut into at a point one inch and a half from its natural outlet, or one inch below the point of obstruction, the much larger uterine probe passed readily several inches beyond, with no apparent obstruction at all. This may have been due to some muscular rigidity which was relieved by the anæsthetic, or with equal probability may have been due to a more intimate attachment of the ureter to the bladder at that point, which, it will be remembered, was near the site where the ureter should have naturally entered the bladder, the ureter being opened through the vagina; and, a large uterine probe being then admitted into its orifice, the instrument was brought against the point of previous obstruction much more directly, and more completely filled the ureter, overcoming any folds of its lining membrane which may have

interfered with the passage of the more delicate probe, which alone would pass its natural orifice.

2. The fact that not one-half the quantity of urine secreted was discharged by this left ureter. There was apparently no diminution in the amount of urine voided from the bladder, yet that discharged from this ureter was only sufficient to saturate two or three napkins a day, or keep her clothes constantly wet. This may have been due to (*a*) a small kidney on the left side, the right kidney doing the greater part of the work; (*b*) a supernumerary kidney on the left side, its ureter discharging beside the meatus urinarius; (*c*) a double ureter on the left side, one half of which opened normally into the bladder, the other opening beside the meatus urinarius.

In this connection, it may be interesting to look a little into the early development of the ureters and kidneys, and see, if possible, how some of these abnormalities occur.

According to Kupffer,[1] and as confirmed by a number of other observers, including Waldeyer, in the lowest class, or amphibia, the Wolffian body directly bears the hollow bud which gives the foundation of the permanent kidney, while in the upper classes the duct from the Wolffian body gives rise to a second or renal canal, from which the budding formation takes place. This quite agrees with Foster and Balfour[2] in their observations on the chick, the result of which was that, between the eightieth and one hundredth hour of incubation, the permanent kidneys begin to make their appearance, the first portion of them to appear being their duct. Near its posterior extremity the Wolffian duct became expanded, and from the expanded portion a diverticulum was constricted off, which was the duct of the permanent kidney, or ureter. The ureter and Wolffian duct, which at first opened by a common trunk into the cloaca, by the sixth day had independent openings. From the upper end of the ureter, diverticula were given off at right angles into the intermediate cell-mass. These lengthening, and becoming twisted, formed the tubuli uriniferi, while the mesoblast around their extremities became directly converted into the Malpighian bodies and the capillary network of the kidneys. The formation of the kidneys took place before the end of the seventh day.

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[1] *Archiv für mikroskopische Anatomie.* Bonn, 1866. Vol. ii., p. 473.

[2] "Elements of Embryology," p. 163.

The kidney thus formed is finally made up of a greater or less number of distinct lobes, or of a single mass without external divisions. Thus, H. Milne-Edwards[1] has shown that in man, near the tenth week of intra-uterine life, about eight renal lobes on each side are counted, the number of these lobes afterward increasing, then decreasing; at the period of birth, however, about fifteen are still to be counted. The formation of the bladder is quite different in not being a subsequent production, but the remains of the allantois, which, according to Kupffer, loses its spherical form as soon as it opens externally by the formation of a short urethra.

It is not difficult to see from the foregoing how cases of double ureters occur, for, when the upper portion of the ureter divides to form the calices of the kidneys, it is only necessary for these diverticula to be given off at a lower portion of the ureter, or even for this folding-in process to extend throughout its whole length instead of being confined to its upper extremity. It is possible that the arrangement of the vessels at this early period may so interfere with the proper development that this divided upper portion of the ureter becomes lengthened.

Having glanced thus hastily at some points on the development of the urinary organs, as well as referred to some of their abnormalities, I wish to present some cases which I have found variously recorded, or with which I have been kindly furnished by individual surgeons, in which the ureters have been in some respects abnormal. It may aid us somewhat in seeing how this case, which we have reported, should have occurred, by a systematic arrangement of the following cases.

ABSENCE OF ONE OR BOTH KIDNEYS WITH THEIR URETERS. —The fact that Dr. Beumer has collected the records of forty-eight cases, recently published in Virchow's *Archives*, in which one kidney, and in nearly all the corresponding ureter, was absent, and that this number of cases occurred within twenty-five years, show that this abnormality is not so extremely infrequent, and we only give two cases where, either from the peculiar position of the kidney or from the detailed account of the arrangement of the vessels, they are of especial interest. But we must believe that the following case, given by Rayer, where both kidneys and ureters were absent, must be unexceptionally infrequent. In his work on "Diseases of the Kidneys," 1841, he thus refers to this subject:

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[1] "Leçons sur la Physiologie et l'Anatomie Comparée," tome vii., p. 311.

> "The total absence of kidneys has been several times noticed in the fœtus, occasionally in the infant at birth; and one case is recorded of such absence in a young girl aged fourteen, who died of chronic enteritis. Among other malformations, there were neither ureters nor kidneys to be found; but the calibre of the umbilical vein greatly exceeded that usual in adults. The girl had, from her birth, been subject to an inconvenience of a very troublesome character—there flowed continually from the umbilicus a fluid closely resembling urine, and emitting so strong a smell that it was impossible to change the linen covering the part sufficiently often. The bladder was wanting."

Dr. Bouilland refers to a subject which he met, where there was but one kidney, situated across the spine, furnished with two ureters. Unfortunately the terminus of the ureters was not given.—*Journal Complémentaire*, July, 1828, quoted in *American Journal of Medical Sciences*, vol. iii., p. 441.

Dr. E. G. Cutler presented to the Boston Society for Medical Improvement, April 22, 1878, the specimen of an absent kidney and ureter on the left side. The subject, a man with ulcer of the duodenum of eight years' duration, died of hæmatemesis, no symptoms referring to the kidney being present. At the autopsy the left spermatic vein, of normal size, entered at right angles into the left supra-renal vein which emptied into the vena cava. There was no left renal artery. Two small arteries ran to the left supra-renal body, of the size of knitting needles. The right kidney not enlarged, with normal vessels, and ureter weighed six ounces. There was no appearance of any opening in the bladder where the left ureter should have terminated, nor any trigone vesicale. The right and left supra-renal bodies were normal.

Ureters opening elsewhere than into the Bladder.—Mr. Fletcher Beach presented to the Pathological Society of London the case of a child, five years old, healthy until six weeks previous, when there was difficulty of micturition, which increased, and death ensued. At the *post mortem*, a third ureter, filled with pus, was discovered, opening below into a pouch near the bladder.—*British Medical Journal*, 1874, vol. i., p. 649.

Dr. T. A. Emmet has kindly furnished me the statement of a case upon which he operated in the Woman's Hospital of New York. The patient was twenty years of age and unmarried; one of the ureters discharged into the upper part of the vagina beside the cervix uteri. His operations were to form a canal, or ureter, out of the anterior vaginal wall by folding it over and thus lengthening out the naturally too short ureter, until it should be brought down nearly to where it should have entered the bladder, at which point he would perforate that viscus, thus turning the urine into its normal receptacle, instead of dribbling into the vagina. Unfortunately the patient left the hospital and was lost sight of before the final operation was performed.

Dr. C. Davis presented to the Museum the case of an acephalous fœtus. The kidneys were converted into large, membranous sacs, no trace of granular structure being recognizable. The ureters, particularly the right one, were remarkably dilated and elongated; they formed two great tortuous tubes, resembling pieces of large intestines as to size, and presented in several situations very close constrictions, and in others complete obliterations. The right tube had no communication with the bladder. The latter organ was much enlarged and misshapen. No urethral obstruction was present.—*Catalogue, Museum, R. C. Surgeons, Ireland.* "Pathology," vol. ii., p. 434.

Double Ureters which coalesce in some Part of their Course.—That it is much more common for double ureters to become united before reaching the bladder, we are all well aware, and that such cases are not extremely infrequent we are sure, yet on account of the non-publishment of many of this class we are unable to give the comparative frequency in the occurrence of this with the next class. We record a few cases, showing the different distances from the kidney where the union has been noticed to occur:

Dr. Bouilland refers to a subject which he met, where two ureters proceeded from the right kidney, and at the termination of about two inches united in one canal. The left kidney was natural.—*Journal Complémentaire*, July, 1828, quoted in *American Journal of Medical Science*, vol. iii., p. 441.

Mr. Henry Thompson showed the specimen to the Pathological Society of London. The patient, ninety-six years of age, had died, as the result of an accident. The ureter (not stated which) was double for a length of about two inches, and the chambers of the pelvis did not communicate. The organ was not diseased.—*Medical Times and Gazette*, 1855, vol. i., p. 375.

Richard Dowling, Esq., reported a case which occurred in the Hôpital des Veneriens. On the left side the ureter arose double, becoming coalesced, however, about two and a half inches from the kidney, from which point it continued on in one canal, emptying into the bladder by one orifice.—*London Lancet*, 1832, vol. i., p. 733.

Dr. Walter Smith refers to a case which was exhibited to the Pathological Society of London, where there was a double ureter, the union of the two tubes taking place at a distance of about four and a half inches from the kidney.—*Dublin Journal of Medical Sciences*, vol. lvii., p. 384. *Report of the Dublin Pathological Society.*

Dr. Carl Wiegert reports a case where the left kidney gave off two ureters which united together at an acute angle after a separate course of about fifteen centimetres, and opened into the bladder in the usual place. Each ureter corresponded to a pelvis of the kidney, so that there was an upper and a lower one. The two pelves were separated by a thick layer of kidney, yet so that one could not remark the boundary of the two territories of pelvis from the outside. The diameter of the ureters, when slit up, averaged one centimetre in the ununited as well as in the united portions.—*Virchow's Archives für pathologische Anatomie und Physiologie, und für klinische Medicin*, lxx., Heft iv., p. 490.

We are very sorry that the reports of many cases of double ureters which we have found, which might have been of the greatest interest in this connection, as possibly helping to establish the comparative frequency of this with the next class, failed to state anything as to their termination, and are therefore worthless here.

Double Ureters which retain their Distinctness throughout their whole Course.—Case [1] reported by Richard Dowling, Esq., which occurred in the Hôpital des Veneriens. The patient entered the hospital for syphilitic disease; and, dying, at the autopsy there were found on the right side two distinct ureters, one arising from the superior, the other from the inferior, portion of the kidney. The two canals were perfectly separate throughout the whole of their extent, but were united by cellular tissue, so as to form, in appearance, a single one, at about two inches from the bladder, into which they opened by two distinct orifices placed side by side at the usual point in the right superior angle of the organ.—*London Lancet*, 1832, vol. i., p. 733.

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[1] *See* case under previous class for left kidney and ureters, from same subject.

Dr. WALTER SMITH exhibited a kidney possessing a double ureter which had been taken from a body in the dissecting-room of Trinity College. The point of interest in the case was that the duct was double throughout the whole extent, from the kidney to the bladder. It was the right kidney which presented this abnormality, that on the left side being normal. At first, it seemed as if the two tubes were joined together at some distance from the bladder; but, by careful scraping, the two ducts could be separated down to their entrance into the bladder. The occurrence of a double ureter was sufficiently rare to make the case worth exhibiting.—*Dublin Journal of Medical Science*, vol. lxvii., p. 384; *Report of the Dublin Pathological Society.*

Prof. BARBOSA observed the following anomaly in a body brought to the Lisbon Medical School: Two distinct ureters existing on the left side, entering the bladder by two distinct orifices. The left kidney was longer by three centimetres than the right, and the two ureters at their origin in the fissure were each provided with a separate pelvis, the united capacities of which only equaled that which would be required by a kidney of this size. The two canals, separated from each other by about three centimetres at their origin, pursued their normal course, one before the other. At about five centimetres from the bladder, they united into a single cord, which traversed its muscular tunic. Careful dissection, however, showed this to be only apparently so, each opening into the bladder distinctly about one or two millimetres from the other. During the last two centimetres of their course, the contiguous walls of the two tubes were so blended together as to constitute but one.—*Gazeta Medica de Lisbon*, 1860, No. 7, and quoted in the *Medical Times and Gazette*, 1860, vol. ii., p. 39.

Dr. HARRISON ALLEN narrated the *post-mortem* appearances of a malformation of the kidney, occurring in a case which he had recently observed. The peculiarity consisted in an elongation of the organ, and its being furnished with two ureters which took their origin from the upper and lower portion of the hilum, at a distance of about one inch apart, and, gradually converging, entered the bladder within about one-eighth of an inch of each other.—*Philadelphia Medical Times*, vol. iv., 1874, p. 220; *Proceedings of the Academy of Natural Sciences.*

Dr. Carl Wiegert reports a case where the right kidney had a bladder with a flaccid but thick wall on its upper part, the rest of it quite resembling the tissue of the other kidney,[1] having a pelvis of ordinary dimensions. From the upper broad cavity in immediate connection with its wall, there went a very broad ureter, and from the lower pelvis of the kidney, a narrow one. The diameter of the first was five centimetres; of the second, one centimetre. The first ran from one and a half to one centimetre distant from the narrow one, and on its inner side; but gradually got behind it, when the narrow one went obliquely before it. In a full condition, it resembled a distended intestine with very shallow curves. In the small pelvis there were several larger curves. This broad canal did not open in the usual place, but went between the posterior wall of the bladder and the left seminal vesicle (before the latter) deep in, became narrowed in a funnel-shaped manner, and sunk into the prostate from above downward, and finally opened by a slit-like opening, large enough to admit a fine probe, into the urethra at the bladder end of the caput gallinaginis. One-half centimetre below, the ductus ejaculatorii opened, and between them the vesicula prostatica. There was no abnormality in this, and it formed no connection with the ureter. The other ureter was closely connected to the front wall of the large ureter in the small pelvis, but left it to open into the bladder in the usual place. From the aorta on each side one renal artery sprang, which separated into several branches before it entered the hilus. There was a corresponding course of the veins. The hilus, moreover, was in the usual position. —*Virchow's Archives für pathologische Anatomie und Physiologie und für klinische Medicin*, lxx., Heft iv., p. 490.

We have thought it inadvisable to refer to the cases we have found reported, where, the ureter being opened as a result of external violence, stabs, bruises, etc., the urine has been discharged through external wounds; but we cannot refrain from quoting the very interesting case of Nussbaum's, where this result was most ingeniously overcome.

After an operation for ovariotomy on a woman forty-seven years old, when the right ureter had undoubtedly been divided on removing a part of the tumor which had become adherent to it, Nussbaum dilated the sinus remaining after the operation, and passed the finger into a cavity, of the size of a pigeon's egg, to the right of the uterus, which was filled with urine, and into which the right ureter opened. A cure was effected in the following way: The urethra was rapidly dilated, and the finger introduced into the bladder; but, as the entrance of the right ureter could not be detected, a trocar was passed through the wall of the bladder into the small cavity mentioned above, and this track was kept open by means of drainage-tubes. The drainage-tube constantly worked out of the canal which had been made for it, still, the passage remained patent, while the fistula in the abdominal walls closed after an application of the cautery, and a complete cure was the result.—*Centralblatt für Chirurgie*, No. 37, from the *Baerisches Aertzl. Intell. Blatt.* 1876, No. 7, p. 63.

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[1] For description of left kidney and ureters, *see* previous class by same observer.

It will be seen, by the foregoing cases, that the report of none was found where the terminus of the ureter was so far removed from its natural position as the one which had come under my observation; and I had begun to consider it as unique, when, by the kindness of Dr. J. B. S. Jackson, who remembered having seen a remarkable case of this class at the Boston City Hospital some years previously, I was referred to the hospital records of that institution, where I found the following case, almost identical with the one already reported.

M. M. entered the Boston City Hospital October 7, 1870. She was fifteen years of age, and had suffered from incontinence of urine since her birth. She had been employed as a domestic for three years previously. Menstruation began only three months before, and was accompanied by some pain in the left side. The incontinence was not complete, for she always retained a part of the urine, which she passed, at regular intervals, two or three times a day.

On examination, the thighs were found reddened from the constant irritation of the urine flowing over them. Four ounces of urine was drawn from the bladder. The patient, being put under the influence of ether, a small opening was discovered one-sixth of an inch to the left of and behind the meatus urinarius, from which issued urine drop by drop, increasing to a slight jet on the patient's coughing. A probe inserted into this opening passed upward and slightly to the left more than an inch, and separated from the anterior wall of the vagina by a very thin wall. No communication, however, could be found with the bladder, vagina, or urethra. Subsequent examinations, made under ether, resulted at times in being able to pass the largest probe at hand, five inches through this canal, its extremity not then being reached, while at other times all attempts to pass it more than an inch were fruitless. When the probe was passed its greatest distance, it could be distinctly felt, with the finger in the vagina, the whole length of that canal to its left portion, and separated from the finger only by a thin wall.

October 29th.—The patient left the hospital before any treatment had been instituted for her relief.

In this case, the opening of the ureter was almost identical with the one at the beginning of this article, and the course of the ureter was likewise to the left side. The same difficulty arose in both cases in introducing the probe more than a very short distance, except when the ureter was drawn upon, or from the relaxation of the muscular action, the peculiar constriction was overcome, allowing the probe to go several inches up the course of the ureter. In this case, however, unlike the other, there was a large amount of urine discharged by this abnormal canal.

It is greatly to be regretted that this case was lost sight of, and that all efforts to obtain a knowledge of her whereabouts have been unavailing.

From the preceding cases and notes the following facts may be noted:

1. The ureter may naturally be so misplaced as to give rise to the most troublesome symptoms, foremost of which stands incontinence of urine.

2. In cases where the ureter is so misplaced, it is possible to overcome the difficulty by surgical interference.

3. It is not absolutely essential to the life of an individual, that either kidneys, ureters, or bladder exist, as shown by the case of Rayer reported.

4. Contrary to the opinion of most writers, and substantiated by the forty-eight cases reported by Brumer, where one kidney is absent the remaining one is not always enlarged, as shown by the case of Dr. Cutler reported.

5. Where the ureters arise double, they are usually given off, one from the upper, the other from the lower part of the kidney, the pelves being distinct and separated by the proper structure of the kidney.

6. Where a ureter terminates in some other part than the bladder, that viscus may be present and well developed, notwithstanding most authorities state the contrary.

7. In most of the foregoing cases the malformations of the ureters were unaccompanied by any troublesome symptoms, and the interesting defects were only discovered at the autopsy.

8. In three of the preceding cases the malformation was discovered during life, having given rise to incontinence of urine by the ureter discharging either by the side of the meatus or into the vagina.

Having written the foregoing article, I was about sending it to press in the early part of the spring of the present year, when I was consulted again in regard to Miss C., whose case is the subject of the paper. I found that, in the fall of 1877, she had begun to complain of some pain in passing water, while there appeared some blood and pus in the urine, and later, difficulty in moving about much, on account of the great pain in the bladder which it occasioned. There was no incontinence, but frequent desire to urinate. During the whole of this time she had been under the care of an irregular practitioner, who had treated her for "liver complaint." She came to the city, where, under ether, by the assistance of Drs. Cutler and Flanders, I removed from the bladder, through an incision in the vagina, a phosphatic calculus which weighed 264 grains.

I did not allow the artificial fistula to close then, as I preferred to have the interior of the bladder become perfectly healthy before allowing any urine to accumulate there. The success of the first operation on the ureter was in no way affected by this later coincidence.

In looking up the literature of this subject, particularly in reference to the development of the ureters, I am greatly indebted to Drs. J. C. Dalton and Dr. Thomas Dwight; and to Dr. E. G. Cutler for his assistance in reviewing the general writings on this topic.

Art. III.—*Description of a Companion Instrument to the Uterine Repositor, with Reflections on Puerperal Inversio Uteri and the Mechanism of Restoration.* By John Byrne, M. D.

In the October number of this Journal I reported an unusually interesting case of unavoidable puerperal inversio uteri, *of eleven days' standing*, in which restoration was effected by the aid of a new instrument extemporized for the emergency. I alluded then to what I surmised might be found an equally satisfactory method of overcoming cervical constriction, and, at the same time, a better means of maintaining *continuous* counter-force, than by the simple plug heretofore employed.[1] This substitute for the latter has been designed to meet a double purpose: first, dilatation of the stricture, and, second, eversion of the invaginated tissues, two distinct and very different processes in the dynamics and methodical order of restoration.

For example, when the annular constriction, through the combined forces of upward pressure and outside *central* resistance, has been made to yield so as to permit the return of any considerable portion of the mass, the first stage in the process of restoration must be considered as complete.

If, at this juncture, the same form of abdominal counter-pressure should be maintained and persisted in, though a degree of support sufficient to prevent undue stretching of the vaginal canal may be secured, yet, the very presence of the wedge, previously so efficient and indispensable, can now have no other effect than that of retarding the operation, or rendering its completion, by this means, impossible. Nor is this the only or most serious objection to the continued use of the plug during the second and final stages of restoration, for the fundus, to say nothing of the ovaries and tubes, must inevitably suffer a dangerous degree of compression.

The *rationale* of the second stage of restoration would seem, therefore, to be best promoted by substituting, for the central *point d'appui*, a counter-pressure applied *to the periphery of the ring exclusively*, thus contributing materially to the influence of the repositor in rolling the uterine tissues over and outward.

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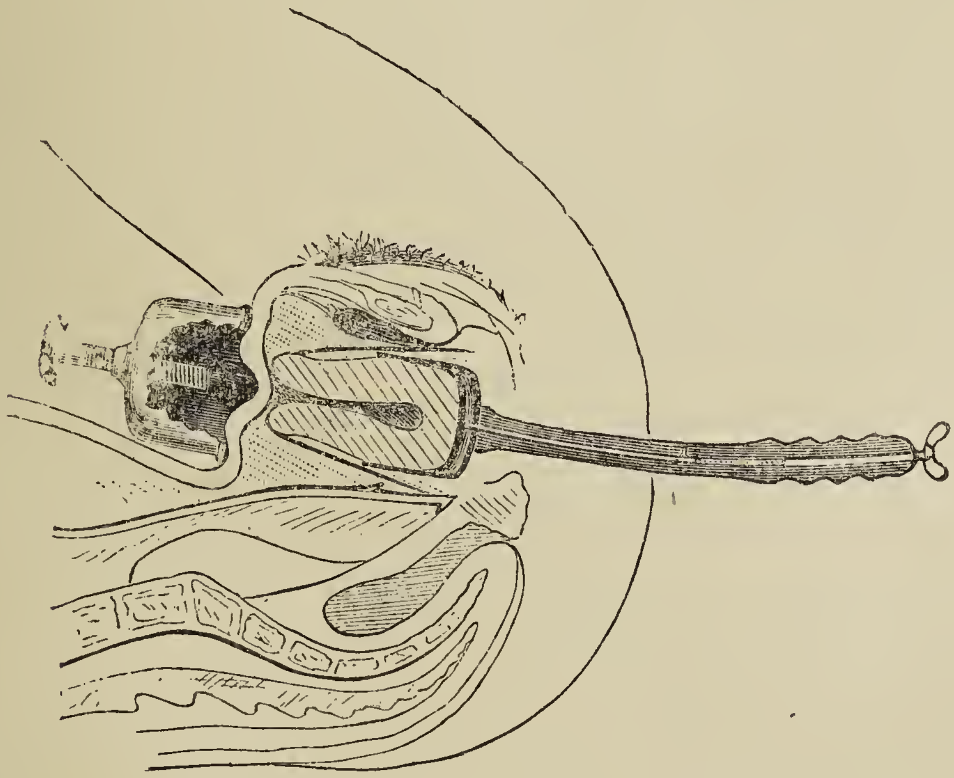
[1] To our distinguished countryman, Dr. Thomas, is due the credit of first suggesting the plug or "cone of boxwood," for abdominal counter-pressure.—"Diseases of Women," fourth edition, p. 439.

As to the third stage, where the position of the uterus might be supposed to represent inversion of the first degree, a hand of the operator, properly and steadily applied, may fulfill every purpose indicated; nevertheless, I cannot but believe that, even here, any contrivance through whose agency a circular concavity might be presented to the returning fundus would be decidedly preferable. It is true, no opportunity has yet offered for practically testing the action of this proposed companion instrument; still, the accompanying cut, intended to illustrate its application and mode of action, may at least serve to suggest the correct principle of taxis in all cases of uncomplicated inversion, whether puerperal (acute) or chronic.



Uterine Repositor with Abdominal Plug and Cup in Position.

The abdominal instrument is an open bell-shaped cup, through the centre of which passes a screw, provided at its lower end with a conical plug of hard rubber, and on the opposite, or outer extremity, a flat knob for a handle. When about to be used, the handle should be screwed down so as to project the plug a suitable distance beyond the margin of the cup. The uterus being raised upward and forward by means of the repositor, as heretofore described, there will be no difficulty in recognizing, through the abdominal parietes, the funnel-shaped depression of the inverted cervix, in the centre of which the dilating wedge should be inserted. The uterus, thus fixed between the two instruments, should now be lowered in the pelvis so as to remove all strain from the vagina, and, the bell-cup having been turned down in close contact with the abdominal surface, the work of restoration may be commenced. *It would be well to remark that the duty of the assistant in charge of the external parts will be simply to maintain a degree of passive counter-force sufficient to resist pressure from below.*

So soon as it appears reasonably certain that progress has been made, and this will, probably, be indicated by an increase in the diameter of the abdominal ring, as also by the ascent of the repositor, the dilating wedge should be screwed back entirely within and above the brim of the cup, so as to *remove all central pressure.* Directions for managing the former instrument, especially as regards the manipulation of the independent bottom, having been embodied in my report already published, need not be repeated here. I will merely add, that the size of the repositor-cup should always be regulated, as nearly as possible, by the estimated bulk of the mass which it is designed to accommodate, to the end that the uterus, when securely boxed up in this cylindrical case, may not have its transverse diameter increased by spreading, or its tissues unequally compressed by any reasonable or required amount of upward pressure.

Since the publication of my case, considerable thought has been given to the subject of inversion, more particularly with reference to the causes to which we should look for an explanation of its occurrence in the puerperal state. An investigation into the details of a large number of recorded cases has also been made, with a view to discover, if possible, some physical or rational signs by which we might be able to suspect, if not to recognize, a predisposition to so grave an accident, and thereby enable us to anticipate the evil by a suitable prophylactic course of management.

In the very outset of this inquiry, as, indeed, at every stage of such an investigation, one naturally encounters certain pertinent and very vital questions, the elucidation of which, though most desirable, would be too much to hope for from a mere brief *résumé* of the very points to be considered, and, if possible, settled. My present object, therefore, is simply to call attention to certain clinical facts, apparently, if not really, irreconcilable with such explanations as obstetric authorities have from time to time advanced.

For example, why is it that partial or complete inversion of the uterus has taken place in a large proportion of the cases reported when a comparatively slight exciting cause existed, as, for instance, "a very trifling amount of traction on the funis;" "the most careful peeling off of a partially adherent placenta;" "a rapid expulsion of the fœtus," or "pressure of the intestines and abdominal muscles, owing to excessive voluntary expulsive efforts on the part of the patient;" from "a partially erect position of the patient during delivery," but "without consequent traction on the cord;" and, finally, as in my case, where there was a total absence of any one of the foregoing or other exciting causes to explain or in any way account for the inversion? To reply that in many of these cases there must have been irregular uterine contraction, or a flabby or paralyzed condition of the fundus, is surely no satisfactory explanation at all, but the mere statement of a certain condition which, even admitting its existence, cannot have other than a secondary causal connection with the occurrence. That a state of active contraction on the part of the fundus, coexisting with inertia of the cervix, or *vice versa*, and by which we recognize a loss of balance between the cerebro-spinal and ganglionic powers, will predispose to or result in the displacement under consideration, it were folly to question. But the knowledge of this clinical fact brings us no nearer an explanation, logical or pathological, of the *fons et origo mali*.

Nearly thirty years ago Dr. Merriman, of London, in referring to the causes of inversio uteri, stated that, though hasty and injudicious meddling with the placenta was frequently the exciting cause of the catastrophe, "nevertheless, evidence is to be found which warrants the belief that some affection or peculiarity in the uterine system itself contributes its share to the occurrence." And in connection with this statement he also says: "I was once called to a case of ruptured uterus in which a soft, flabby, pulpy texture existed, and the rupture appeared to have taken place during a pain of unusually low power."[1]

To these suggestive views of a deservedly high authority I might appropriately add my own experience in two cases of rupture of the uterus, which occurred in my practice many years ago. Neither of these women, both multiparous, had had a labor of average severity or duration. No ergot had been administered, nor was there at the time any known cause to account for the fatal *dénouement.*

In one a *post-mortem* examination was made, and the tissues for a considerable distance around and beyond the seat of rupture were so attenuated and friable that the uterine wall could be perforated by a slight pressure of the finger and thumb.

As to the other, it was found out afterward that, about two weeks previous to her confinement, she had sustained an injury over the abdomen, considered slight at the time of its occurrence, by accidentally falling against a stair-rail.

Whether by a closer observation than is usually bestowed on the phenomena of parturition individually, and a due appreciation of the causes of faulty, irregular, inefficient, or otherwise abnormal labor, we may be enabled hereafter to foresee and guard against inversion, or, when unavoidable, be better prepared for so grave an emergency, time alone will tell. In the mean time, however, I would respectfully suggest to such as may have the time, experience, and desire to pursue the course of investigation thus hurriedly and imperfectly outlined, that, in discussing the etiology of puerperal inversion of the uterus, the subject might be most satisfactorily treated under three heads or sets of causes, viz.: PRIMARY, PREDISPOSING, and INCIDENTAL.

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[1] *Medical Times*, London, July 12, 1851, p. 36.

Clinical Records from Private and Hospital Practice.

I.—*A Case of Tubal Pregnancy terminating by Expulsion of the Fœtus through the Natural Passages; Recovery.* By Dr. Cornelius Williams, Physician to the Northern Dispensary, Assistant Surgeon to the New York Ophthalmic and Aural Institute, Surgeon in the Out-door Department of Mount Sinai Hospital, etc.

Mrs. A., aged twenty-nine; born in Ireland; married four months. The patient is a well-developed woman of medium size, and has always enjoyed good health. Seven years ago she was delivered of a fully-developed child, at term, in the Lying-in Asylum, Glasgow. The nipples present the appearance of those in women who have nursed, and the lineæ albicantes are well marked. She states that the labor was an easy one, and that she had a good "getting up." The child died when ten months old, said to have been drugged by the woman who had it in charge.

Mrs. A. was married on the 21st of May, 1878. At the time there was a slight show of blood from the vagina, but her regular menstrual flow occurred as usual, on the 28th following. She was not unwell at the regular time in June, though she had a slight "show" then. From that time the patient suffered from the usual symptoms of pregnancy—morning nausea, enlargement of the breasts, etc., and considered herself pregnant. At several times through the summer she had had small quantities of blood issue from the vagina, and about a month before I saw her this loss was considerable. A week before, she had had another vaginal discharge of blood, and on Sunday night, September 15th, she was awakened by a gush of blood from the vagina, which alarmed her. On Monday she remained in bed, there being more or less flowing all day. She states that at one time on Sunday night the discharge was thin and watery. She had complained of some pain when these hæmorrhages occurred through the summer, but the pain was not great. On September 16th, at 7.30 p. m., I saw the patient for the first time, and was told that she had been losing some blood, and had suffered much pain. A vaginal examination found the external os closed, cervix long and not soft. The enlarged uterus was felt, and, thinking it an ordinary case of threatened abortion (the above history was not obtained then), I ordered morphia suppositories containing one grain each, one to be placed in the rectum, and, if pain recurred during the night, another was to be used. On the morning of the 17th I saw her; there had been no more hæmorrhage nor pain, and she felt well. Temperature and pulse normal.

On September 18th I was called about 10 A. M. to see the patient, who told me that she had been troubled for some hours with a "gnawing pain" in the left lower abdomen. The pain would begin on the left side, and run across toward the other; there had been slight hæmorrhage all day, and the woman had not slept.

Something in the patient's facial expression decided me to make a thorough examination, which I did, with the following result: I found the cervix hard, long, and high up; it was thrown backward and pressed against the posterior vaginal wall. The external os was closed, and presented a transverse dentated aperture. The uterus, by conjoined manipulation, could be felt slightly anteverted, and occupying the right pelvis, nearly if not quite touching its side. It was somewhat sensitive to the touch, and could be freely moved. In the left pelvis a tense elastic tumor could be felt, which was apparently about five inches long, and had a fusiform shape. The abdominal walls were lax and not very thick, so this tumor could be palpated with ease by conjoined manipulation. It seemed to join the uterus at an angle of about 100°, and any movement given to this tumor was imparted to the uterus, while conversely an impulse communicated to the uterus also caused the tumor to move. The superior outline of the tumor could be distinctly traced through the abdominal wall to where it seemed to join the uterus near its fundus, where the fingers could, by firm pressure, be made to sink into a depression or sulcus. The tumor was not particularly tender or painful, yet these manipulations caused considerable pain, and made the patient wince. She had not been costive or constipated, but had had no stool since Monday, the 16th. Morphia was again ordered, but first a full dose of castor-oil, after the action of which the suppository to be used. At 2 P. M. I saw her again. She had introduced the suppository, and then taken the oil. The bowels had not acted. I again examined by conjoined manipulation, and caused the woman to lie first upon the back and then on the right side. The tumor still retained its position, though it could be moved in every direction. The cervix was perhaps a little softer than at the time of the first note; percussion over the tumor did not give absolute dullness—probably the intestine covered it; it appeared tense to the touch, though elastic and smooth; fluctuation could be detected, yet obscurely; attempts to obtain the sensation of *ballottement* were not successful. I passed a catheter into the bladder, and withdrew several ounces of urine; the bladder occupied its normal position. The woman was then placed in Sims's position and examined with the Sims speculum. The cervix occupied the position described, and there was slight erosion from friction.

I now concluded that I had to deal with a left tubal pregnancy, and explained to the woman that hers was not a usual case; that there was danger in it, etc., asking for a consultation. On the same evening my friend Dr. Mundé saw the case with me, and, after hearing the history and examining her, he inclined to the same diagnosis. The bowels had moved freely from the oil.

On the morning of the 19th, we saw her again, when it was decided to pass a sound into the uterus, which we did, the patient lying on her back upon a table. A Simpson's sound passed readily and without any force through the internal os to the fundus, the uterus measuring barely three inches in length. The sound was first passed by Dr. Mundé and then by myself with the same result. When left to itself, it of its own weight fell to the right, the point describing the arc of a circle equal to 90°; such an excursion could not be communicated to it toward the left without using a degree of force which was considered unjustifiable. When turning the point of the sound upon the left wall of the uterus, there seemed to be a scratching sensation communicated to my fingers, which was, however, not remarked by Dr. Mundé. We were both satisfied that the uterus was entirely empty, and, believing that there was a pregnancy, agreed that the tumor in the left pelvis was the fœtal sac, and that the sac was formed by the left Fallopian tube. At Dr. Mundé's suggestion it was arranged that we would see the patient together on the next day, and tap the cyst through the vagina with a fine aspirator needle. Ten o'clock was the hour appointed.

Up to this time the patient had had no severe pain, and was pretty well under the influence of morphia. She was kept in bed and strict quiet enjoined. At 9 P. M. (19th), I was called to see her, and found her suffering from severe "gnawing pain," which recurred at rather irregular intervals, and extended across the abdomen from left to right. This statement she reiterated a number of times without its being elicited by a question. I found the os softer, and beginning to dilate; slight hæmorrhage. I gave her a grain of morphiæ sulph. per rectum, and directed that she should have the same quantity at twelve o'clock, if she had pain.

At 2 A. M., on the morning of the 20th, I was called again. I found the woman in extreme agony; she writhed and turned in the bed, she cried out with pain, and during several paroxysms she assumed the genu-pectoral position, asserting that it enabled her to better bear the pain, which she described as of a "gnawing" and tearing character. She had taken another suppository about three-quarters of an hour before. I then gave her an hypodermic injection of gtt. 7 Majendie's solution into the abdominal wall, and remained with her till she became somewhat quiet.

At 7 A. M. I was called again. She said that the pains began again about five o'clock, they were rhythmical in their return, and occurred about every two minutes. As I entered the room a mass of dark clotted blood was expelled from the vagina, probably one-half to three-quarters pound. The tumor still retained its form, though it was appreciably softer, os larger, cervix shorter and softer.

At no time when I had my finger on the tumor did I feel anything like a contraction of it, though I do not remember that the woman had a paroxysm of pain during the examination. The face now had an anxious expression, and she complained of great pain, still having the character described. I gave another injection of Majendie's solution, gtt. 7, and telegraphed Dr. Mundé. Meantime I prepared to perform the operation of gastrotomy, should the occasion demand it.

At 9.30 we reached the patient's bedside. The pains had continued unabated. A few moments before we arrived a male fœtus measuring three inches from vertex to extremity of nates had been expelled per vaginam, and was lying between the woman's thighs, the cord, which was about 10 inches long, attached, and the placenta retained in the uterus. The internal os had contracted, and *the tumor which had occupied the left pelvis had disappeared*; the most careful examination failed to discover any trace of it.

The fœtus, which I have preserved, presents the appearance of about ten weeks development. The hæmorrhage, which was slight, had ceased. A teaspoonful of Squibb's fluid extract of ergot was administered to the patient, but the placenta could not then be extracted.

In about half an hour I was able to pass my finger into the uterus and hook out the placenta entire; while doing so I ran the finger several times over the inner surface of the womb, and am able to say that it presented no roughness or inequality.

I am sorry that I did not also keep the placenta; it was, however, perfectly normal in appearance, and about 2½ inches in diameter. The membranes were normal, and were torn at about opposite the centre of the placenta. A very small white granule was observed upon them, about the size of a pin-head, and had the consistence of cheese. It was only macroscopically examined.

I syringed out the vagina with tepid water with carbolic acid, and ordered a couple of doses of fld. ext. ergot, one-half teaspoonful at intervals of an hour and rest.

20th, 5.30 P. M.—Temperature in axilla, 103° Fahr.; pulse 120° and weak. The patient has fainted away several times, and the vagina is very hot; some blood oozing from the uterus; os closed.

I syringed out the vagina with cold carbolized water, and placed a lump of ice within it.

21st, 10 A. M.—Temperature 100½° in axilla; no pain, but little tenderness; complains of diarrhœa.

21st, 11.30 P. M.—Temperature 101°. The diarrhœa has increased; she has had five or six stools since I saw her last, passes them in bed, seems to have little control of the sphincter ani, and has also vomited several times. The discharge from the vagina has now become fetid, and has a peculiar white curdy appearance, like curdled milk and whey. The patient has had some milk punch and infusion of beef, but they have not remained.

I ordered quin. sulph., gr. j, tinct. opii, gtt. v, every hour, and that she swallow bits of ice when nausea is felt. The vagina to be syringed with carbolized water every hour.

22d.—The diarrhœa and vomiting ceased after the first dose of the medicine prescribed, and the patient is cheerful; has retained the beef infusion. Temperature 102° in axilla, pulse 116°, rather full. The husband, a man of little intelligence or good-will, had not washed out the vagina as directed. I endeavored to wash out the uterus, but, from imperfect apparatus and poor assistance, only partly succeeded.

I now procured the admission of the patient into the New York Hospital. Up to this time there was no appearance of peritonitis, but I feared septicæmia. Dr. Amidon, now House Physician, has kindly furnished me with the following abstract from the record of her case:

22d.—M. A., admission, very weak; pulse thready; complains only of slight abdominal pain. Hypodermic of Majendie, gtt. x, and pil. opii, gr. j, every three hours.

23d.—Much nausea and vomiting; still lies with knees drawn up; hypodermic in addition to opium.

24th.—Stopped opium; bowels moved; vomits all milk she drinks. Vaginal discharge white, thick and offensive odor; ordered weak carbolic acid (1–200) douche for vagina.

25th.—Very little pain; limbs extended; retains some food.

26th.—Chill at 11.30 P. M.

28th.—No pain and very little discharge.

29th.—Sat up.

October 4th.—Out on pass; has gained 1¾ pound since September 26th.

9th.—Discharged cured.

On October 27th I saw Mrs. A. She has had considerable domestic trouble, though appears well; complains of œdema of left leg and foot. I made a vaginal examination, and found the uterus in its normal position; its cavity measured three inches in length. I endeavored to pass the sound into the left Fallopian tube, but could not do so. The uterus is freely movable, and not sensitive to the touch. There is a slight mucoid discharge from it. I wish to say here that, in examining the uterus before the expulsion of the fœtus, its *volume* conveyed the impression that, upon measurement, its cavity would be found to measure more than it did. In the region of the pelvis which was formerly occupied by the tumor, there can now be felt a thickened band, stretching out toward its side, pressure upon which, by external and intra-vaginal palpation, gives pain, though otherwise there is no inconvenience felt. She complains of pain in the small of the back, though she is able to go about her work, and walks forty-three blocks to and from it.

In recording this case I am not without a certain misgiving that there are some who will not agree with me that it was a tubal pregnancy. It may even be asserted that the pregnancy was a normal one, or that at most it was a tubo-uterine fetation. I am, however, firmly convinced that the left Fallopian tube formed the envelope of the fetal sac, and that the site of implantation of the placenta was beyond that part of the tube which traverses the uterine wall. That it was not a case where the ovum had been developed in an undeveloped horn I consider as disposed of by the fact that the woman had borne a child at term before, and that the uterus of to-day does not show any evidence of such abnormality. That it was not a tubo-interstitial pregnancy I think may be assumed from the fact that the sulcus between the cyst and the uterus was well marked, and that my finger introduced into the uterus did not detect the evidences of laceration which would probably be present if such had been the case. I also believe that, if any portion of the wall of the uterus proper had participated actively in the formation of the covering of the abnormally situated ovum, its ratio of development had been much greater, and, with a fœtus measuring three inches from vertex to extremity of the nates, the length of the uterine cavity would have been greater, and the disturbances occasioned by the constantly enlarging fœtus would have presented a different phase. It should be remarked that *tenderness* of the tumor was not present in a marked degree, and that symptom is said to be conspicuous where any portion of the wall of the uterus is involved.

My theory is that the left tube had been in the condition of a chronic salpingitis, with thickening of its walls and some enlargement of its calibre, anterior to the fructification of the ovum, which may have emanated from the left ovary, and, perhaps because of this very condition of catarrh of the tube and the concomitant disturbance of its function, had failed to reach the uterus; or it may be that the ovum descended from the right tube and ascended or fell into the left and there became attached. There existing already an hypertrophy of the muscular walls of the tube, it was all the more fitted for rapid development, and finally to contract upon its contents in the same rhythmic manner as would the uterus, and expel them. This latter I think actually happened. While there undoubtedly must have been some laceration of uterine tissue at the ostium tubæ, I believe the essential factor in the opening of the way for the egress of the fœtus to have been dilatation.

The subsequent history seems to favor this view.

That a child may be carried to term in the Fallopian tube is conclusively proven by the case recorded by Spiegelberg in the *Arch. für Gyn.*, i., 1870, p. 406; and that a child may be so carried and born by the natural passages is shown by the case recorded by M. Guillmot in the *Arch. Gén. de Med.*, tome xxviii., p. 232, to which Laugier bears witness.

Laugier also reports a case quoted by M. Guillmot (*loc. cit.*), as also the other case of Laugier's from the *Jour. de Med. et de Chirurgie*, etc., p. 156, 1774, where, after delivery and in expressing the placenta, he felt a tumor in the abdomen, which caused him to suspect the existence of a mole. Passing his fingers into the uterus and in the direction of the tumor, he found them to enter the dilated mouth of the Fallopian tube, where he felt what he supposed to be an encysted (and, from the history, in all probability it was) fœtus which had died several years before. From these circumstances and others I think it not improbable that the orifice of the tube may dilate and permit the escape of its contents.

Dr. Charles McBurney, NEW YORK MEDICAL JOURNAL, No. 3, volume xxvii., p. 273, has very accurately recorded a case having many features in common with this one. In his case, however, the feature of pain and tenderness on pressure was prominent, and confirmatory, I think, of the correctness of his diagnosis of tubo-interstitial pregnancy.

As to the treatment proposed, I probably would not again adopt it as the best or safest. Yet it has the support of eminent authority, Playfair, Spiegelberg, and others; and, while it doubtless has been followed by disastrous results in some cases, it has in others been attended with perfect success.

There are probably intrinsic conditions in every case which may in a measure determine beforehand the meed of success that will follow the efforts of the physician for their relief.

In conclusion, I think the inference a legitimate one, that cases like the foregoing, and McBurney's also, perhaps, are not infrequent in a comparative sense. Unless they are subjected to unusual scrutiny they escape detection, and where the result is like those cited they of course pass for ordinary abortions. The case of Braxton Hicks,[1] and the one reported by Widney,[2] of California, do not belong to the same category as Dr. McBurney's and my own. The one of Hicks was undoubtedly an interstitial pregnancy, which, but for an untoward accident, might have terminated favorably; and such cases may not be recognized during life, or their true character be appreciated after death, unless a *post mortem* be obtained.

The result of this case, and of others like it, should warrant the addition of another to the list of possible terminations in tubal pregnancies, i. e., that the fœtus may be expelled *per vias naturales*, spontaneously, or with the assistance of art. Consideration of the possibility of spontaneous expulsion, however, should not, for a single moment, deter the physician from adopting such measures for the relief of the woman as are imperatively demanded by the exigencies of the occasion; on the contrary, I think there is a very obvious indication as to our way out of the difficulty, suggested first, I think, by Hodge, and again by Emmet, and which suggested itself to me before I knew that it had been proposed by the authorities mentioned. It is that, the cervical canal having been dilated, an attempt should be made to dilate the opening of the Fallopian tube, and thus bring about the very issue which I believe to have taken place in this case. This plan of treatment, though not unattended with danger, is probably safer than any yet proposed, and would often meet with success.

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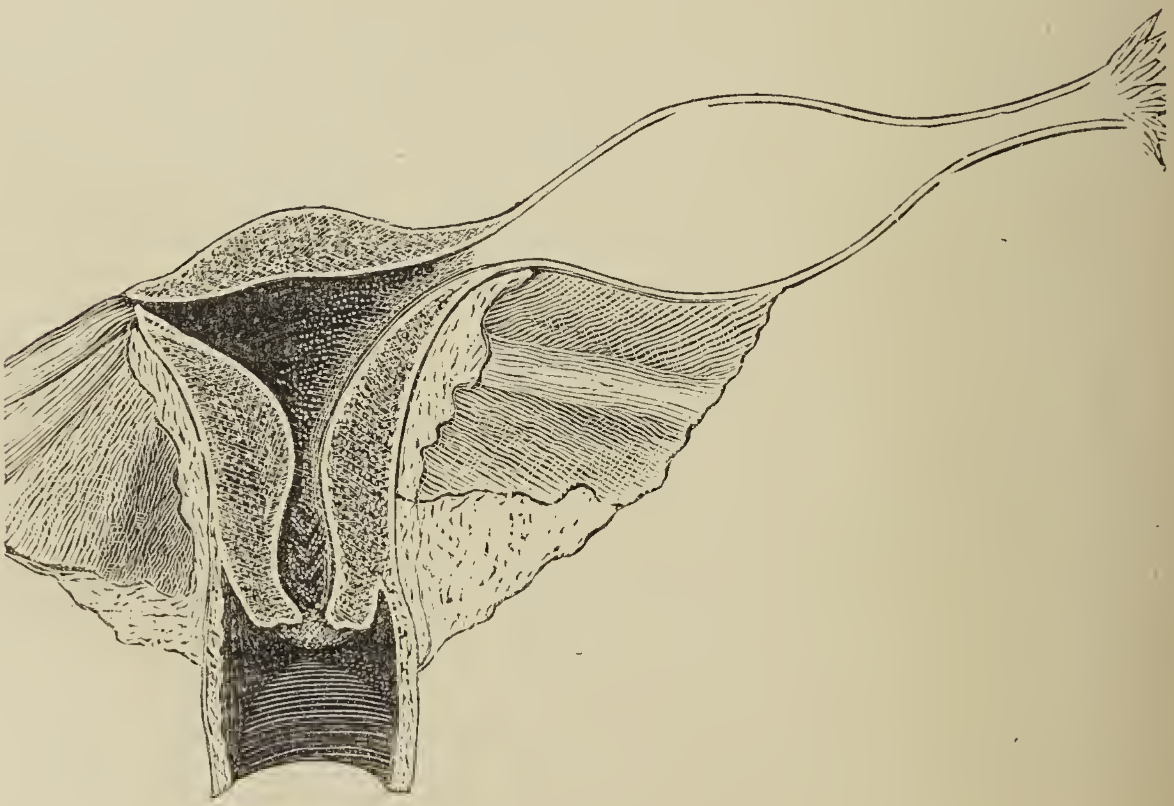
[1] "Transactions Obstetrical Society," London, vol. ix., p. 57, 1868.

[2] *Boston Medical and Surgical Journal*, March 9, 1871.

Finally, I do not believe that the manipulations necessarily practised in this case influenced the result materially one way or another.



The accompanying cut is from a drawing kindly made for me by Dr. B. Bettman, from a sketch of my own.

Notes of Hospital Practice.

ROOSEVELT HOSPITAL.

Fracture of Clavicle, Sternum, and Ribs—Difficulty in Diagnosis.—A man fell from a three-story window, and was taken to hospital. An examination showed a dislocation of the shoulder; this was reduced, and the patient discharged. A few days afterward he returned, complaining of continued fever, with pain in the upper part of the thorax. A thorough examination was then made, and there was found a tumor extending from the left shoulder inward. The clavicle, sternum, and upper two ribs on the left side were found to be fractured, as well as the first rib on the right side. The pulse on the right side was weaker than on the left, but the cause at the time could not be determined. The tumor on the left side increased in size and developed pulsation. It was feared that a traumatic aneurism of the subclavian had occurred, and it was deemed unwise to open it. Poultices were applied, and the presence of pus became so obvious that it was opened. Death took place eventually from exhaustion. At the autopsy the condition of the clavicle, sternum, and ribs was as suspected. An abscess was found near the sternum, which communicated with the posterior mediastinum by a canal large enough to admit the little finger. Pus was found in the mediastinum, and the pulsation which was noticed before the opening of the abscess was seen to be due to the pulsation of the heart forcing the pus upward to the superior abscess. The weakness of the right radial pulse resulted from an abscess near the shoulder. Pus was found in the right shoulder-joint and along the muscles of the right arm.

Aneurism of the Aorta—Benefit of Strapping.—A woman, aged fifty, entered hospital March 3, 1877, suffering from a painful pulsating tumor at the second right intercostal space, and extended from the root of the neck to the third rib. It was discolored on its surface and fluctuated. The aneurismal bruit was very distinct. The patient stated that she had syphilis fifteen years previously. She was placed on the iodide of potassium, and the tumor strapped with adhesive plaster.

May 14th.—Swelling much lessened. Pain relieved.

June 8th.—No murmur. The tumor not elevated above the surface of the chest.

July 9th.—Pain returned over the tumor.

15th.—Tumor reappeared. The iodide of potassium, which had been stopped, was again administered.

20th.—Pulsation increased. The iodide increased to 30 grains, three times a day.

August 19th.—Still increasing.

24th.—Tumor appeared to the left of sternum, accompanied with pain.

25th.—Again strapped.

29th.—Pulsation diminished. Tumor diminished in size.

September 3d.—Strapping removed. Tumor lessened in size.

20th.—There remains but a slight elevation above the walls of the chest.

28th.—Complete disappearance of both pulsation and tumor.

October 1st.—Reappearance of pulsation to the right of the sternum. No pain.

11th.—Tumor again appeared, tender on pressure. Strapping applied.

November 1st.—Still increasing. Has pulsation.

13th.—Is smaller. Has taken the iodide of potassium continuously. Has huskiness of voice with brassy cough.

16th.—Has dysphagia.

30th.—The tumor has decreased in size.

December 31st.—Much weakened.

January 20, 1878.—The only symptom complained of is cough.

February 21st.—Discharged improved.

July 18th.—Patient readmitted, suffering from dysphagia and dyspnœa. The tumor larger than at any previous time. Placed on the iodide of potassium and strapping applied.

26th.—Loss of power in left hand.

August 22d.—Tumor decreased in size.

September 14th.—Has increased regardless of the strapping.

23d.—Discharged.

October 25th.—Readmitted. Tumor increased in size; is about the size of the closed hand. Pain extending over chest to the back and along both arms. Dysphagia and dyspnœa much worse. The upper half of the sternum gone. The patient again placed on the iodide of potassium and strappings applied.

The history of the case so far shows the benefit that may follow strapping, not only in lessening the size of the tumor, but in diminishing the pain. The influence of the iodide of potassium would seem to be questionable, inasmuch as the tumor increased at times regardless of its continuous use, and was only reduced by pressure.

Aneurism pressing on the Bronchus.—A man, aged thirty-four, has a thoracic aneurism which is supposed to have obliterated the main bronchus, from the fact that voice and respiratory sounds are wanting on the right side. There are slight attacks of hæmoptysis. Latterly fluid has appeared at the base of the lung, as proved by aspiration. The case is interesting in connection with a somewhat similar one presented at the Pathological Society by Dr. Loomis (JOURNAL, February, 1876, page 182). In that case there was found consolidation of the whole of the left lung, closely resembling the appearances found in the third stage of pneumonia. The left bronchus was completely obliterated. The aneurism was of the fusiform variety, and about the size of a hen's egg. Death took place from rupture. At different times during the course of the disease slight hæmoptysis occurred.

MOUNT SINAI HOSPITAL.

Bulbar Paralysis.—There are two cases under observation in this hospital, which are important in their history in regard to the diagnosis of progressive bulbar paralysis. In one of them the symptoms are typical and progressive, in the other there seems to be an improvement—at all events, not an advance—in the difficulty of articulation and deglutition. The clinical history of each was as follows:

CASE I.—A man aged 59, a shoemaker, noticed last April a difficulty in swallowing, which increased till September, when he gave up and entered hospital, and on examination presented the usual symptoms of glosso-labio-pharyngeal paralysis. Saliva drips from the mouth. The tongue can only be slightly protruded, and in the effort the fibrillar twitchings are very decided. He cannot articulate, but with an effort can give a guttural sound. Any effort to swallow causes severe distress. Mucus accumulates in the pharynx, and has to be removed by the finger. In the case there is a history of apoplexy, which may have been the cause of the bulbar symptoms. The prospective autopsy is of particular interest in this respect.

Case II.—A man aged 53, foundryman, entered May 1, 1878. He said that fourteen weeks before admission he noticed weakness and trembling in the upper extremities, which gradually increased. Six weeks subsequently there was pain in the lumbar vertebræ, most severe while walking. On admission the trembling in the upper extremities was quite marked. There was no anæsthesia. He could not protrude his tongue, except in jerks. The fibrillar twitching of the tongue was very noticeable. Deglutition was accomplished with difficulty. Before swallowing he moved the morsel around his mouth. Treatment consisted in the use of the galvanic current along the spine and limbs. The current was of an intensity of from eight to ten elements. In a few months he improved considerably, and left hospital, but after a few months more he returned. During the time that he was out of hospital he became worse, and on his readmission the treatment was continued. He is now able to articulate quite distinctly.

The case seems to be one of the class referred to in Erb's article in Ziemssen's "Cyclopædia," on progressive bulbar paralysis as a complication of the disease, in which a case of progressive muscular atrophy takes on atrophic paralysis of tongue, lips, and palate. The special interest of the case, however, rests in the fact that there seems to be a general improvement, particularly in regard to the latter class of symptoms.

Successful Removal of Ovarian Tumor followed by Sarcoma

and Death.—A patient entered hospital during the fall of 1877 suffering from polycystic ovarian tumor. Ovariotomy was performed with success by Dr. Noeggerath, and the patient was discharged. She returned in September, 1878, stating that she noticed an abdominal tumor commencing in the previous May. On admission the tumor was the size of pregnant uterus at full term.

An exploratory operation was performed, but the adhesions were so firm that the abdominal wound was closed. Union took place by first intention. The patient suffered much from dyspnœa, and eventually death occurred from exhaustion.

At the autopsy a sarcomatous tumor was found, having its origin along the internal line of the cicatrix of the incision for removal of the ovarian tumor. There was also general sarcoma, which affected the lungs, pleura, spleen, and serous surface of the intestines. The uterus was not affected, neither was the stump from which the ovarian tumor had been removed. In the stump were found several catgut ligatures, which had not been absorbed.

Clinical Reports of the Demilt Dispensary.

DEPARTMENT FOR DISEASES OF THE THROAT.

TWO CASES OF BILATERAL PARALYSIS OF THE DILATOR MUSCLES OF THE GLOTTIS (MUSCULI CRICO-ARYTÆNOIDEI POSTICI). CURE.

By George M. Lefferts, M. D.

Since Gerhardt, in 1862, first called general attention to the occurrence of this interesting and important lesion of the larynx—interesting from its rarity and the obscurity of its pathological causes, of importance on account of its, in many cases, unfavorable prognosis, and the important surgical question involved in its treatment—and Mackenzie, in his classical brochure on the paralyses of the larynx, attempted to define its causation and lay down an absolute rule for its treatment, the views of many of those specially interested in the general subject of laryngology have undergone some very radical changes concerning it. All will admit that the condition under consideration is one of the rarest, and by far the most serious, as regards its immediate or remote results, of the many paralyses of the individual laryngeal muscles, for, as is well known, upon its supervention, "the inspiratory opening of the glottis is extinguished, and the true stenosis of the highest grade, with danger of asphyxia, is established," a state of affairs whose danger speaks for itself. But many have found good and valid reason to deny, or at least doubt, that its "causes are generally cerebral," that its prognosis is so extraordinarily serious, or that its treatment should consist always in the performance of a tracheotomy "without delay, to save the patient from dying of suffocation." This change of view, which we believe will be generally admitted to exist, and which involves, as will be seen, some important questions, has only been the natural outcome of the results of a larger experience, both in the diagnosis and treatment of the disease, and is one of the effects of a more general use of the laryngoscopic mirror, and the consequent multiplication, notably within the last year or two, of carefully observed and recorded instances of this form of paralysis. In other words, our views are now broader and based more upon facts, and less upon theory—are founded upon the results obtained in not one, but in a number of cases. It has been practically demonstrated that the teachings of our earlier authorities, valuable as they were, are in many respects defective, and that the entire subject needs now to be rewritten if it would represent the present state of our knowledge. This revision can and should be materially and practically assisted by bringing before the profession probably many unreported cases, with their results, with which specialists collectively are familiar in their own practice. The number of recorded instances is still small, too small to settle conclusively many points which it is desirable should be settled, especially in regard to etiology and treatment. Ziemssen, in a very complete *résumé*, could find, in the literature of paralyses in general, but nine instances of complete bilateral paralysis of the *crico-arytænoideus posticus* (Gerhardt, Riegel 2, Mackenzie, Penzoldt, Feith, Nicolas-Duranty, Rehn, and Ziemssen), although he eliminates, in making up this number, several cases which are considered as debatable, but which will generally be regarded as belonging properly to his enumeration. Such are Biermer's cases; Penzoldt's second case (hysterical paralysis); a case of paresis of this muscle, by the same author; Ziemssen's case (hysterical paralysis); and, finally, Hansen's case of paralysis of these muscles, due to syphilis, as in the two instances which I here report. This list I may now complete to date, for the information of those interested in the matter, by adding a number of cases which have been published since Ziemssen's article appeared, including one or two which he does not mention, as follows: Henle,[1] Bresgen,[2] Klemm[3] (five cases of unilateral paralysis, and two cases of bilateral paralysis of the abductor muscles of the glottis), Warren,[4] Glynn,[5] Smith,[6] Sémon,[7] Robinson,[8] Smith,[9] Meschede,[10] and several instances of hysterical paralysis, reported to the Berlin Medical Society in 1878, by Guttmann and Fraenkel, and supplement them by the two undoubted instances which I have had an opportunity of observing, and which I offer without comment, believing that their rarity, and the importance of the questions which they, in common with all similar cases, will help to elucidate, are sufficient reason for placing them upon record.

Case I.—The patient, a robust Irish woman of about forty years, came to me on the 8th of May, 1876, with urgent demands for relief from the difficulty which she experienced in breathing, and which she believed was rapidly growing worse. The condition she regarded as a recent one, and as having manifested itself, for the first time, only a few days previously; but the occurrence of two or more attacks of paroxysmal and very severe dyspnœa (laryngeal spasm), the night before her visit to me, had greatly terrified her, and rendered her apprehensive of life. Upon questioning her, she told me that five years previously she had had a severe sore throat, with what I should undoubtedly judge, from her description, to have been mucous patches of the mouth, but denied absolutely any further secondary manifestations of syphilis, and professed entire ignorance of any such thing as a primary lesion. Without treatment, in time, the condition bettered itself, and nothing in her statement required comment until the lapse of several years. In December, 1875, the disease again made itself apparent, after its period of quiescence, this time by extensive ulceration of the fauces, with perforation of the hard palate, a discharge of bone, a general eruption—unquestionably a pustular syphilide—osteoscopic pains and neuralgia. Again, time alone in a few months made an apparent cure, as far as the healing of the ulcerations and the disappearance of the eruption are concerned; for she received no treatment, and continued in what she was pleased to consider perfect health, despite the existence of the large perforation of the bony palate, with its attendant discomforts.

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[1] *Archiv der Heilkunde*, XVI., I., 1875.

[2] *Virchow Archiv*, May 27, 1877.

[3] *Archiv der Heilkunde*, August 1, 1877.

[4] *Boston Medical and Surgical Journal*, August 31, 1875.

[5] The London *Lancet*, September, 1877.

[6] *American Journal of Medical Sciences*, January, 1878.

[7] The London *Lancet*, April 20, 27, 1878.

[8] *American Journal of Medical Sciences*, April, 1878.

[9] *British Medical Journal*, July 13, 1878.

[10] *Berlin. klin. Wochenschrift*, June 17, 1878.

At the expiration of this time, that is, just before the date of her first visit to me, difficulty in breathing manifested itself. At first the difficulty was but slight, and only noticeable after some unusual exertion and at night, but gradually showed itself during the day also. The voice remained unaffected. Such was the history up to the occurrence of the laryngeal spasm, the alarm of the patient, and her consequent appearance before me.

I found the dyspnœa to be but moderate, but that all inspiratory efforts were attended with considerable muscular effort, and, if forced, were accompanied by contraction of the sterno-cleido-mastoid muscles, sinking inward of the suprasternal region, and descent of the larynx. Stridor, though not loud, was plainly audible at some little distance. Expiration was noiseless, easy, and short. The voice was but slightly husky, in short, would, under other circumstances, have attracted no attention. There was some cough, but it was infrequent, and without expectoration. Finally, the general condition was excellent.

The condition of the pharynx gave unquestionable evidence as to the former existence of manifold syphilitic lesions at this point: a large perforation of the hard palate in the median line, near its junction with the velum; above it, over the hard palate, a large, depressed, and stellate cicatrix; two perforations of the right posterior pillar of the fauces, and numerous cicatrices, distorting somewhat the configuration of the parts in this latter neighborhood, left no room for question, though all active ulcerative action had ceased, and an intact posterior pharyngeal wall remained. The larynx, viewed with the laryngoscope, showed the typical picture, often described, seldom seen, of the glottis in paralysis of the above-mentioned muscles. A narrow slit alone between the vocal cords, so narrow that, practically, it amounted to a nearly complete closure of the glottic opening, gaping slightly open during expiration, disappearing on forced inspiration, and narrowed even when the process was quietly conducted. In phonation, juxtaposition of the vocal cords, and plainly perceptible vibration, the former due alone to the adductive movement of the right vocal cord, the left being motionless. The laryngeal mucous membrane was slightly reddened, but showed no evidence of any old catarrhal process; its sensibility was undiminished.

The question as to whether the condition described was due to a central disorder or to a local affection of the larynx only, either being dependent, in this case, upon the syphilitic diathesis, was easily answered, in the total absence of all or any corroborative symptoms of a central lesion. Moreover, no direct interference by the pressure of tumor or otherwise, with the trunks of the recurrent or pneumogastric nerves, could be demonstrated. Regarding, then, the laryngeal condition as dependent upon some direct and local effect of the syphilitic poison, just what I am not prepared to say, the patient was placed upon the course of treatment indicated, and the result fully justified the diagnosis.

On May 8th she was ordered iodide of potash, in twenty-grain doses, with an eighth of a grain of the biniodide of mercury, three times daily, the danger of her condition, and the possible necessity of a resort to tracheotomy having been fully explained to her, and all arrangements made for my early attendance if the necessity should arise.

On May 12th, potash increased to twenty-five grains, three times daily.

On the 15th, patient reported that her breathing had become much easier, and that she had had no further attacks of laryngeal spasm.

On the 22d, still continued improvement; the laryngoscope shows that there is a decided attempt at abduction of the vocal cords during full inspiration.

On June 5th, this view was confirmed, the improvement being manifest.

June 15.—The patient was again examined, and the abduction of the vocal cords demonstrated to be an absolute fact; even in ordinary inspiration, their separation and the opening of the glottis were nearly complete, although not absolutely so; and a sluggishness of movement in their action was still apparent. All stridor in the respiratory sounds had disappeared, and the patient expressed herself as free from all embarrassment of respiration, even during active exertion. The potash, which had been given since May 12 in twenty-five grain doses, was now decreased to fifteen, and patient discharged with instructions to report in one month's time; this she did, and gave a most satisfactory account of her progress, as far as the rational symptoms went. The laryngoscope showed that the improvement noted above in the movements of the vocal cords had been progressive, and that the glottis was widely opened during inspiration. Adduction of the cords was likewise satisfactorily performed: the patient was advised to still continue the use of the potash in diminished doses for a time. I have not seen her since.

In the second case, all the laryngoscopic appearances and the rational symptoms of paralysis of the posterior crico-arytenoid muscles were even more typically presented than in the one just detailed. Its history is as follows:

Case II.—The patient, aged thirty-five, though in former years of delicate health, developed into a strong and robust woman and married at sixteen a man of dissipated habits, but, as far as she knows, good constitution. In due time, she was confined and delivered at full term of a perfectly healthy male infant. This child is now living, aged sixteen, and is in all respects strong and well developed! Ten months later the patient joined her husband, who had been absent from home for that length of time in search of work. Soon after the beginning of her second pregnancy she tells me, she became anæmic, lost flesh and strength, and suffered greatly from nausea; at the end of the second month she miscarried, and soon afterward remarked the presence of what, from her description, was undoubtedly a well-marked syphilitic roseola. The third pregnancy resulted in the premature delivery at the end of the seventh month of a still-born badly-developed fœtus. The fourth pregnancy was carried to full term; but the child was still-born and imperfect. In the three following pregnancies, the fifth, sixth, and seventh, the children were born at full term, were perfectly developed, but all died a few hours after birth. The eighth and last pregnancy resulted in abortion at the end of the third month. Since this time, now seven years since, the patient has not menstruated, a fact that she attributes to a severe fright received at about that date. Proceeding now from this outline of the general history, which is certainly of much interest, and illustrates well the blighting effects of the syphilitic poison, to the details of her present trouble, she informs me that in October, 1877, although she is not absolute as to the date, she contracted a severe cold; and at the end of a week noticed that her breathing, which had been previously entirely unembarrassed, was difficult, and her voice hoarse. The symptoms here mentioned increased rapidly until, on the third day, the dyspnœa is described by the patient as distressing and constant. Under treatment, however, improvement followed, and all the symptoms of what was probably a severe catarrhal inflammatory attack passed away. In April, 1878, following fresh exposure, a gradually progressive dyspnœa manifested itself, and was naturally attributed to the same cause as the previous attack; the same treatment was employed, but without avail. At the end of one week, the patient had been obliged to give up all active exertion; during the second, paroxysmal attacks of increased dyspnœa occurred at intervals during both the day and night, and added very materially to her sufferings. She became rapidly reduced in both health and strength, and was obliged to pass the greater part of the time in her bed. Finally, two weeks later, an attack of acute inflammation of the larynx placed the patient in imminent danger to her life, and brought her to me for treatment—June 1, 1878—by the advice of her physician, who had been called to attend her the night before during a violent and prolonged attack of what was described as being laryngeal spasm. At the time of my examination, all immediate urgency in the character of the respiratory symptoms had passed away; the grade of dyspnœa from which the patient suffered was but moderate and purely inspiratory, unless the respirations were accelerated by exertion or conversation. Stridor was audible and accompanied each inspiration, while expiration was easy and noiseless. The voice was hoarse and unreliable, and the occasional collection of mucus in the larynx added to the difficulty in breathing until it was removed, sometimes with much trouble. The patient was weak, nervous, and apprehensive.

An examination of the larynx showed that all proper movement in abduction of the vocal cords was wanting. Powerful inspiratory efforts only succeeded in forcing the edges of the cords together and causing complete linear closure of the glottis. During quiet respiration, the glottis presented a narrow slit, which was readily closed by attempts at phonation. The entire laryngeal mucous membrane, especially that of the vocal cords, was hyperæmic and, in the latter locality, swollen. Auscultation informed me that a moderate bronchitis existed; in all other respects except her general debility, the patient presented a favorable condition of affairs. Such being the results of my examination, the question as to the causation of the laryngeal condition was not easily determined. The patient's history as regards syphilis presented an efficient and probable cause, but there also existed a possible one in the catarrhal condition of the larynx; while the history of a former and similar though less serious attack lent an air of probability to the latter hypothesis. The question likewise as to the necessity—in view of the occurrence of the violent attacks of increased dyspnœa which have been described—of an immediate resort to tracheotomy could not be ignored. Upon a careful consideration of the whole question as it presented itself, and after ascertaining that the patient could be so situated as to be readily and quickly reached should a necessity for the operation arise, no matter how suddenly, I determined to place her upon an anti-syphilitic course of treatment, encouraged to do so by its good effects in the former case. Twenty grains of potash with $\frac{1}{8}$ grain of biniodide of mercury were ordered to be taken every four hours, and the effects to be carefully watched. The latter were prompt and most satisfactory. Without going into tedious details, it may be stated that the improvement—noted almost from day to day—was rapid, and that an examination of the larynx made within one month from the date of commencing treatment showed a perceptible movement outward of the vocal cords when a deep inspiration was taken. The dyspnœa improved in proportion to the improvement in the size of the glottic opening, as might be expected, and the patient quickly regained her former robust health.

At a demonstration of the patient's larynx held before the New York Laryngological Society in October, 1878, a slight lack of muscular force and immediate response to inspiratory efforts, in abduction of the vocal cords, was alone perceptible. Adduction was in all respects normal. The patient still continued the treatment with diminished doses of the iodide. One month later, the laryngeal condition still remained about the same.

Proceedings of Societies.

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, October 1, 1878.

Dr. Walker, Vice-President, in the Chair.

Dr. Warren presented a fibroid tumor of the uterus, removed that day by Dr. Thomas.

Dr. Gillette reported a case of confinement in a lady who has been insane for several years. During pregnancy she manifested no signs of mental aberration. He was sent for in a great hurry one day, and found his patient in no pain, but lying on the bed with one hand shaking involuntarily. On making an examination he found the os completely dilated, with the membranes protruding. He ruptured the membranes and then waited for uterine contractions. His patient begged to be delivered by instruments at once, but he refused to use them. She then became almost maniacal. He then sent for forceps and delivered at once. She was delivered without accident. The shaking of the hand still continued. The chief point of interest was the total absence of pain. It was a well-known fact that the insane often do not suffer pain; that they inflict severe injuries upon themselves, and still evidently do not suffer pain.

Dr. Hanks asked Dr. Gillette if he had found it usual for patients who were maniacal to be entirely free from maniacal manifestations during the period of gestation.

Dr. Gillette replied that he had not investigated the subject carefully enough to enable him to say, but he believed they were usually sane during pregnancy.

Dr. Mundé remarked that it would be a valuable thing to know if this was positively true.

Dr. Walker said he had seen a number of cases where he feared mania would follow delivery; but, in all, delivery improved their condition.

Dr. Gillette said he remembered the cases of two insane women confined during the past year at the Maternity Hospital, who were insane during pregnancy and remained so after confinement.

Dr. Chamberlain related the case of a patient at Charity Hospital, who had been confined a few days before at the Maternity. She was then suffering from septicæmia. Temperature 103$\frac{4}{5}$°. She was having frequent chills and occasional vomiting. Incontinence of urine first attracted his attention. Examination disclosed laceration of the cervix and vagina. The laceration of the vagina was transverse, and reached almost into the bladder. It appeared that the incontinence was due to this. The doctor expected to be obliged to operate for its cure, but she was now improving in every respect. The temperature had gone down to 99°. Nature had come to her relief, and the incontinence had ceased. Dr. Chamberlain remarked that the spontaneous healing of a fistula caused by a transverse fissure of the vagina was new to him.

Dr. Gillette said he had been surprised by the closing of a fistula he had made for the removal of a stone.

Dr. Chamberlain said he was aware that Dr. Emmet found it the most difficult thing to keep a fistula open that had been made for the cure of chronic cystitis. But this he maintained was different, being due to transverse laceration, the result of accident.

Dr. Mundé related a case which he had been called to see down town in consultation. It was supposed to be a case of extra-uterine pregnancy. The woman had supposed herself pregnant, and had not called in a physician. She certainly had all the symptoms of pregnancy. She had had a child three years before. On examination, the left side of the pelvis was filled by a tumor, which appeared to fluctuate. On the right side was a tumor which appeared like the fundus of the uterus. The os was soft. He could not make out whether it was a single or double uterus, or a tubal pregnancy. It was decided to do nothing but pass the sound, if it appeared that pregnancy did not exist. He had been summoned on account of profuse hæmorrhage. He examined again, and made up his mind that normal pregnancy did not exist; so he passed the sound and decided that the uterus was empty. It was decided to operate on the tumor on the left side, the following day. He was telegraphed for the next morning and found a baby had been born. He did not understand the case, for he certainly found the above conditions; so he is inclined to think it was a case such as Dr. McBurney has published, a tubo-interstitial pregnancy. After delivery the tumor at the left had disappeared.

Dr. Walker related a case to which he was called for profuse hæmorrhage and pain. On examination he found a retro-flexed uterus, which he replaced by placing the patient on hands and knees, and pressing upon the fundus. She turned livid, frothed at the mouth, and exhibited all the symptoms of epileptiform convulsions. He had never before met with a case of epileptiform convulsions caused by pressure upon the fundus uteri. There was no epileptiform tendency, but she was an excessively nervous woman.

Stated Meeting, October 15, 1878.

Dr. A. J. C. Skene, President, in the Chair.

Dr. Watts presented a tumor removed from a woman thirty-eight years of age. It was situated in the centre of the abdomen, and seemed to lie just beneath the skin. It was made out to be disconnected with the ovaries. On operation it was found to lie between the layers of the mesocolon. There was no difficulty in removing the tumor entire, but the sac or matrix of the growth was slightly torn, and thus communicated with the abdominal cavity. The temperature rose after the operation, and the patient died. A small quantity of fluid was found in the sac after death, but no pus.

Dr. Thomas asked if the patient did not die of septicæmia.

Dr. Watts said she had none of the usual symptoms of septicæmia, except the high temperature.

THE THERAPEUTICAL SOCIETY OF NEW YORK.

The Annual Meeting was held October 11, 1878, Dr. J. R. Leaming, President, in the Chair.

The election of officers resulted in the choice of the following: President, Dr. J. R. Leaming; Vice-Presidents, Dr. E. R. Squibb, Dr. J. C. Peters; Recording Secretary, Dr. A. H. Smith; Corresponding Secretary, Dr. E. C. Seguin; Councillors, Dr. R. F. Weir, Dr. A. Jacobi.

The Committee on Neurotics through its Chairman, Dr. E. C. Seguin, presented the following report:

Gentlemen: I have the honor to submit the following brief preliminary report on the efficacy of the aconitia of Duquesnel in trigeminal neuralgia.

This matter was made a subject of study by the Committee on Neurotics early in this year, chiefly because of the wide circulation of Prof. Gubler's statement that aconitia was almost infallible in trigeminal neuralgia. His original article appeared in the *Gazette Hebdomadaire* for February 9, 1877; and good abstracts were published in the *American Journal of the Medical Sciences* for April, and in the *Practitioner* (of London) for August, 1877. In his *Leçons de Thèrapeutique*, Paris, 1877, Prof. Gubler has already stated his beliet that aconitia was destined to be a very valuable remedy.

It may be interesting to recall the fact that, writing in 1874, Dr. H. C. Wood, of Philadelphia, in his *Treatise on Therapeutics*, had said that aconitia should never be exhibited internally. Drs. August and Theodore Huseman, in their admirable work entitled *Die Pflanzenstoffe* (Berlin, 1871), gave a full account of the preparation and the chemical and physiological properties of aconitia. They do not mention Duquesnel's preparation, though it was made in 1864.

Aconitia was extracted from aconitum napellus by Geiger and Hesse in 1833. This aconitia was amorphous, and probably impure, as are also the preparations now furnished by druggists under the names of Merck's, Hottot's, and Morson's aconitia. Of these the last is considered the purest and best.

Duquesnel's aconitia in crystals, although discovered in 1864, has been in use, apparently, only for the last seven years—since the experimental researches of Gréhaul and Duquesnel in 1871. The only sample of Duquesnel's preparation in this city to my knowledge is that held by Dr. Neergaard, the distinguished pharmacist. With the chemistry and pharmacy of aconitia we have little or nothing to do, but an epitome of its physiological effects may not be out of place.

From Husemann's, Wood's, and Gubler's accounts the following may be stated with reference to the effects of this powerful alkaloid upon the animal organism.

It paralyzes the sensory nervous system at its peripheral extremities, and (probably) at its perceptive centres.

It paralyzes the heart directly, and by way of the vagus nerve. The pulse-rate is reduced. It lowers the arterial tension. It is doubtful if it affects the motor-nervous system directly. The subjective sensations of a patient who is fully under the influence of aconite or aconitia are: Numbness and tingling of the skin and mucous membranes, especially in the hands and tongue, a sense of chilliness and faintness, and indefinable nervousness.

The doses of aconitia vary very much, according to the preparation used, and according to the idiosyncrasies of patients. In general terms the initial dose of all three kinds—Morson's, Hottot's, and Duquesnel's—may be 0.0005 gramme (about $\frac{1}{130}$ grain), given twice or thrice a day. Prof. Gubler states that the dose of amorphous aconitia may be gradually raised to 0.005 gramme (about $\frac{1}{13}$ grain). He states that Duquesnel's crystallized aconitia is much stronger, and that we must be more careful in dosing it.

In my own practice I have used great caution in prescribing Duquesnel's aconitia. My formula (first used last winter) is as follows:

℞.	Aconitiæ (Duquesnel's),	gr. $\frac{1}{10}$.
	Glycerinæ, alcohol,	āā ʒ i.
	Aq. menthæ pip.,	ad ℥ ii.

M. One teaspoonful = about $\frac{1}{140}$ grain.

S. A teaspoonful two or three times a day on an empty stomach.

In some cases I have used $\frac{1}{8}$ grain, or even $\frac{1}{6}$ grain, of aconitia in the same formula. In this combination the solvent is the alcohol. The effects of various doses of aconitia upon our patients will be stated in the remarks which follow the relation of the following cases observed by your committee:

Case I. Observed by Dr. T. A. McBride.—A male, aged twenty-eight years, seen at the New York Hospital in March, 1878. Complains of right supra-orbital neuralgia, which has lasted three months. The pain was constant at first, but latterly it has been paroxysmal and very severe. In the past week paresis of the right third nerve has supervened; patient has ptosis, dilatation of pupil, and external strabismus. On March 3d is ordered $\frac{1}{100}$ grain Duquesnel's aconitia in solution three times a day. Contrary to positive directions, the man did not report to Dr. McBride for four days, and then stated that he had been almost entirely relieved of pain; he had taken the medicine as directed until the evening of April 1st, when he stopped because of relief, and of tingling in tongue and ends of fingers. No change in paresis of motor oculi. Ordered sulphate of strychnia $\frac{1}{24}$ grain t. i. d. The patient came regularly to the hospital for two weeks, and during that period there was no recurrence of pain.

Case II.—Male; seen at the Manhattan Hospital by Dr. Seguin. An extreme case of epileptiform-trigeminal neuralgia, of two or three years' standing. In 1877 had derived great relief from Thompson's solution of phosphorus in full doses. Chief seat of pain is in supra-orbital branches of trigeminus, but all of its filaments in the left face sympathize in the attack. Was given $\frac{1}{100}$ grain of Duquesnel's aconitia twice a day for several days, with effect of provoking severe tingling, but without relief to pain or reduction in frequency of seizures. Patient not traced.

Case III.—Male, aged about thirty-five years. Seen at clinic for diseases of the nervous system, College of Physicians and Surgeons, February, 1877. Old neuralgia of right infra-orbital nerves; epileptiform in type. Aconitia in doses of $\frac{1}{100}$ grain two or three times a day gave only slight relief; not enough to encourage continued treatment. Patient not traced.

Case IV.—The reporter himself, in March, 1878, while weak from a combination of causes, had trigeminal neuralgia, involving all branches of the nerve on the left side, lasting six days. After failure of Thompson's solution of phosphorus, I tried aconitia, and took only $\frac{1}{200}$ grain. Two doses were taken, with severe physiological effects. I felt much tingling in the fingers, legs, and tongue, had rigors, and was cold and faint. The only good effect was very slight and transient relief from severe pain. The attack was brought to a close by the extraction of a bad tooth in the upper jaw of the affected side.

Case V. Reported by Dr. N. B. Emerson at a meeting of the committee, held April 27, 1878.—J. D., aged thirty-two years, printer, presented himself February 15, 1878, suffering with attacks of violent pain in the first and second divisions of the right trigeminus, accompanied by clonic spasm of the facial muscles attached to the angle of the mouth on the same side. The pain was lightning-like in the suddenness of its onset, and was of the most acute form, causing him at the time of the attack to writhe with agony, and press his hands against the painful cheek. The affected side of the face was extremely sensitive. The paroxysms were very frequent. He had been similarly affected eight months before, and successfully treated by me with phosphorus and cod-liver oil. Present attack has not lasted long. No syphilis. There were several decayed teeth in the jaw, but they were not sensitive, and, in my opinion, were not likely to be the cause of the affection. Quinine, phosphorus and cod-liver oil, and morphine, were unsuccessfully used. I then decided to use aconitiæ, after Gubler's plan, and ordered:

℞.	Aconitiæ cryst.,	gr. $\frac{1}{6}$.
	Alcohol,	q. s.
	Aquæ, q. s.	ad ℥ ij.
	M.	

The first preparation was used two days without effect. I then directed the patient to have the prescription filled by Mr. Neergaard. At once one ninety-sixth grain produced entire relief of pain, followed by numbness of the mouth, tongue, and face, with peculiar symptoms in the periphery. On the recurrence of pain the following day, one sixty-fourth grain was taken with less physiological effect, and less relief. On the third day, two doses of one sixty-fourth grain each were taken night and morning, the terrible pain being relieved only after the second dose. Finally, after a dose of one forty-eighth grain, the pain remained entirely absent for eight days, and then returned with severity.

Case VI. Observed by Dr. Seguin at the College of Physicians and Surgeons.—Mrs. A. D., aged fifty-seven; was first seen at clinic for diseases of the nervous system in the autumn of 1874. She gave the following history: In 1870 had trouble with the teeth in the right lower jaw, "caught cold in the gums," and present pain began. It occurred in paroxysms of sharp, severe pains in the right lower jaw, right half of tongue, and right half of lower lip. She suffered with no intermission up to the time when Dr. D. M. Stimson sent her to the college. The medicinal treatment which I then advised had no more effect on the neuralgia than other modes which had been tried, including extraction of the teeth.

In the succeeding summer, 1875, Mrs. D. again came to see me, representing herself as under no physician's care. I accordingly took charge of her, and excised at least one-quarter of an inch of her inframaxillary nerve, by the intra-buccal method, also known as Lizars's. This was followed by absolute cessation of all pain in lip, tongue, and jaw, and by anæsthesia of the right half of the lower lip.

In a few weeks, patient thinks three or four, some return of sensibility occurred in the anæsthetic district, and has increased until now even delicate tests reveal no anæsthesia. No pain recurred until the early spring of 1877, a period of twenty months. In April, 1877, patient's husband died, and she sat a long time near the ice-box in which his body was preserved. Immediately had a return of neuralgic pain in the same regions, viz., tongue, gum, and lower lip of right side. The pain was again sharp and paroxysmal. She suffered greatly until late in the autumn of 1877, when spontaneous relief took place, and she had pain only at intervals during the whole winter. The only medicine which she took during this time was cod-liver oil. She had no powerful drugs. In the spring and early summer of this year she had as frequent and as severe attacks of pain as at any time; many paroxysms each day, attacks epileptiform in suddenness of appearance and in severity. She presented herself at the clinic for diseases of the nervous system for the third time, on July 13, 1878, and the following notes from the clinic case-book embrace her history since that date:

July 15th.—The pain begins in the gum of the right lower jaw, then darts into the right half of tongue along its whole length, especially in its anterior portion; it also affects the right half of the lower lip. She has no pain in the upper jaw or in the distribution of first branch of trigeminus, but it should be stated that she has a good deal of pain, also neuralgic in character, in the right side of the head behind the ear, the right side of the neck, and right shoulder. From almost the commencement of her illness, more or less of this pain has existed, varying greatly at times, but not annoying so much by far as the maxillary neuralgia. The paroxysms of pain in the jaw and tongue came on every few minutes. Once in a while, the patient adds, when the pain is greatest in the above-described region, a little of it shows itself in the gum of the right upper jaw. Is ordered a tonic mixture.

July 20th.—Is better, generally, than last week. Ordered extract gelsemini fld., gtt. v, t. i. d., the dose to be increased by one drop each day.

July 27th.—Pain relieved by the gelseminum, gtt. vij of which produced queer sensations and double vision. In the last few days has taken only gtt. vi, t. i. d. Ordered gtt. v twice a day and gtt. x at bedtime.

August 3d.—No marked benefit from above treatment, although much distress was produced by the doses taken. Ordered $\frac{1}{140}$ grain of Duquesnel's aconitia in solution t. i. d.

August 10th.—On the 7th reported at my office, and as the above doses had produced no effect I directed her to take $\frac{1}{100}$ grain t. i. d. on an empty stomach. To-day (three days after beginning the larger doses) she is free from neuralgic pain, though some soreness of the parts remains. After each dose of $\frac{1}{100}$ grain had some tingling in extremities and face. Treatment to be continued.

August 31st.—Has had no paroxysm of pain since beginning the $\frac{1}{100}$ grain dose. Has only noticed an occasional soreness in the tongue, provoked especially by acids. Can eat with comfort, whereas three weeks ago attempts at mastication caused agony. States that effects of one dose of aconitia consist in tingling in the whole body, most marked in the toes and fingers, and in peculiar chilly sensations.

The pain in the neck and shoulders is not wholly relieved. Complains of much sweating at night. To take for two or three days one ten-grain dose of sulphate of quinia at bedtime. The aconitia to be omitted, and Fowler's solution to be taken instead, in doses of gtt. iij after meals, gradually increased.

September 14th.—Has remained perfectly free from facial neuralgia, and has had only moderate pain in side of neck, right shoulder, and upper arm. Has taken gtt. x of Fowler's solution without unpleasant effects; sweating arrested. Ordered to cease taking arsenic, and to use ʒj of Thompson's solution of phosphorus (= $\frac{1}{19}$ grain of phosphorus) night and morning.

September 21st.—Had slight return of pain in right lower jaw and tongue on September 18 and 19, arrested by a few doses of aconitia. To-day is perfectly well, except that right side of neck and arm is painful.

October 11th.—Has had no return of neuralgia since last note, and neck has not been so painful. States that she has more or less pain in the whole right side, from behind the ear to arms and down lower extremity to heel at times. With exception of slight neuralgic pains on September 18 and 19, has had no recurrence of inferior maxillary or lingual neuralgia since August 7th, a period of sixty-five days.

I append a case of another form of pain, viz., the severest fulgurating pains of sclerosis of the lateral columns, in illustration of the toleration of large doses of aconitia.

Case VII.—Mr. B.——, 57 years of age, has suffered from typical fulgurating pains in the lower extremities for twenty-seven years. He has as yet no trace of ataxia, and the only other symptom of spinal disease present is mydriasis of the right eye.

One of the favorite seats of these pains has been the internal aspect of the right leg, and in the last six weeks Mr. B—— has had innumerable paroxysms of cutting, tearing, and grinding pain in this region, sometimes causing extreme agony. Wishing to try aconitia for the relief of these pains, I gave him at first $\frac{1}{140}$ grain three times a day, and, not obtaining any relief or any physiological effects, gradually increased the dose to such a point that in forty-eight hours, ending October 4th, he consumed $\frac{1}{6}$ grain, without relief to pain, and with no physiological effect, except a transient and doubtful tingling in the finger-tips. I did not care to push the remedy farther. I should add that the prescription was filled at Neergaard's, and that I took pains to make inquiries as to possible errors in its preparation.

From the above cases the following conclusions may be justly drawn, I think:

1. The susceptibility of individuals to Duquesnel's aconitia varies enormously; one individual in the series having been severely affected by $\frac{1}{200}$ grain, while another tolerated with no special symptoms $\frac{1}{84}$ every three hours. On the average, distinct physiological and therapeutical effects were obtained by giving $\frac{1}{100}$ grain three times a day.

2. Out of six cases of severe trigeminal neuralgia, one, probably a reflex neuralgia from a decayed tooth, was not at all benefited.

Three cases, epileptiform in form, were slightly or only temporarily relieved. Two cases were cured. One of these had existed for seven years, with an interruption of twenty months, procured by resection of the affected nerve.

It would thus appear that, while we cannot indorse Prof. Gubler's statement that Duquesnel's aconitia never fails, we must recognize in it one of the most powerful and best agents for relieving and curing trigeminal neuralgia.

3. We do not as yet know the forms of trigeminal neuralgia which can be most influenced by aconitia. The three following cases have been reported to the committee since the meeting of the society at which this report was read.

Case VIII. Observed by Dr. O. B. Douglas.—Mrs. C. H. M., aged nineteen, born in New York; married; was, October 19th, attacked with severe neuralgic pain in left eye—extending to submaxillary and bregmatic regions—which continued increasing in severity for three days and nights, being much worse at night, till she could only walk the floor and cry from the pain. On the fourth day I saw her, and ordered, commencing at 10 A. M., drop-doses of tincture of aconite root, beginning with four doses the first hour, two the second, and one each subsequent hour till relieved or physiological effects produced. The pain subsided, and she slept well the following night till 2 A. M., when, with slight return of the pain, she awoke, took two doses, and slept till morning, and has had no return of the trouble to this date (Oct. 25th).

Last winter she suffered two weeks from a similar attack, and has been subject to neuralgic pains at other times, usually a result of exposure to cold. In all fourteen doses were taken, but no physiological effects of the drug were observable.

CASE IX. Observed by Dr. A. H. Smith.—Mrs. R., aged forty-four years; married; seen October 13th. Had been suffering with severe pain in the face for four weeks, pain beginning in the right side, then passing to the left temporal and frontal region, and also affecting the left arm. It was aggravated to such an extent by the recumbent posture that the patient was unable to lie down. The night of the 12th was passed in extreme pain. Ordered the $\frac{1}{140}$ of a grain of Duquesnel's aconitia to be taken every four hours. Two doses were taken on the 13th with a slight degree of relief. On the 14th ordered the medicine to be taken every three hours. There was a decided abatement of the pain. At seven o'clock in the evening the patient experienced a numb and tingling sensation in the lips and tongue, and more or less over the whole right side, and especially in the fingers of the right hand. *It was not felt at all in the parts affected by the neuralgia.* The sensation was so decided that the patient, although forewarned, was considerably alarmed.

The night of the 14th was passed very comfortably, as was also the following day. During the evening of the 15th, however, the pain returned with great severity, but in the right instead of the left side. The medicine had been taken every three hours and a half; directed it to be taken at intervals of three hours. On the 16th there were again decided numbness and tingling, affecting this time chiefly the *left* side, the pain being chiefly in the right. The pain was greatly mitigated during the day, but returned every evening between seven and eight o'clock, lasting three to four hours. The 19th and 20th, however, passed by without a paroxysm. After that there was a recurrence every alternate day at about 5 P. M., lasting four hours. On the 21st quinine was ordered; the aconitia continued. Did not see her again until to-day (26th). Quinine had produced nausea, and had not been efficiently taken. Paroxysms have continued regularly and with unabated severity. Physiological effects of aconitia limited to tingling in tongue and lips. During one day the dose was repeated every two hours.

CASE X. Observed by Dr. Seguin.—Male, aged thirty-nine. Epileptiform neuralgia on right side, involving all branches except lingual, for ten years. Suffering atrocious; many paroxysms a day. The case is under treatment, and is not ready for report, but I may say that Duquesnel's aconitia, given in doses of $\frac{1}{96}$ grain three and four times a day, has produced physiological effects and diminished the severity of the disease. In the last week patient has had only one or two severe paroxysms a day, and few slight pains. The relief is so great that patient uses extravagant expressions of gratitude, "is in heaven," etc. This is the first treatment which has relieved him. At this date (October 27th) he is still under treatment, taking $\frac{1}{96}$ grain three times a day; iodide of potassium (no syphilis), and dialyzed iron.

These cases do not alter, but only confirm the committee's conclusions, as expressed *supra.*

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, October 23d, 1878.

DR. JOHN C. PETERS, President.

Separation of Epiphyses of Right Femur.—Dr. GEORGE T. SHRADY presented on behalf of a candidate a specimen showing the separation of the epiphyses. The patient was eighteen months old. The symptoms commenced suddenly and ended in death from exhaustion in seven weeks. The child's foot was everted, but there was an absence of the reflex symptoms usually found in hip-joint disease. An examination showed undue mobility with crepitation. There was swelling in the iliac fossa, groin, and right labium, and upper part of the thigh. An incision was made over the great trochanter, when about six ounces of pus escaped. The diagnosis made was separation, partial or complete, of the upper epiphysis of the femur. In the specimen the cartilage was found to have disappeared, with the exception of a small scale which was attached by its outer edge to the neck. This latter was a rounded fragment of cancellated tissue three-eighths of an inch in diameter.

Epithelial Melanoma.—Dr. SATTERTHWAITE presented on behalf of a candidate a specimen of epithelial melanoma of the eye, accompanied by a written history.

Aneurism of Innominate; Dyspnœa; Tracheotomy; Death.—Dr. BEVERLY ROBINSON presented on behalf of a candidate a specimen of aneurism of the innominate artery with the following history: A man aged forty-nine entered Charity Hospital, October 3, 1878, suffering from extreme dyspnœa. Three days previous to admission he had a chill, followed by fever. He was able to work till the day before entering hospital. When he was examined in the ward the dyspnœa was excessive. The larynx gave no evidence of being the seat of the disease. The chest showed the presence of pneumonia, but not sufficient to account for the urgent symptoms. The case advanced with but little change till October 7th, when the operation of laryngo-tracheotomy was performed at 3 P. M. The operation relieved the dyspnœa and lessened the cyanosis. The improvement continued for twelve hours, when acute pulmonary œdema set in. It was relieved, however, by venesection and diaphoretics. A relapse occurred, however, in a few hours, resulting in death sixteen hours after the operation.

Autopsy—Thorax.—An aneurism of the innominate artery with thin walls was found to the right of the median line and beneath the manubrium. It was of the sacculated variety, and pressed backward upon the trachea from the bifurcation upward to the extent of two inches. The tracheal rings were not eroded. The aortic orifice of the innominata measured three-fourths of an inch. The recurrent laryngeal nerve was dissected from the aneurism to which it was attached. The middle lobe of the right lung gave evidences of croupous pneumonia.

Parasitic Disease of Lungs of Calf.—Dr. LIAUTARD presented the lungs of a calf which was supposed to have died of broncho-pneumonia. On examination the bronchi were found to contain a large number of filiform worms. Dr. Liautard said the disease was rapidly fatal.

Sarcomatous Tumor of Bladder.—Dr. L. A. STIMSON presented the bladder of a patient which exhibited a large sarcomatous tumor on its posterior aspect. The patient entered the Presbyterian Hospital during October, 1878, stating that he suffered from hæmaturia at intervals. An examination for stone gave negative results. After the examination blood flowed from the bladder. The prostate was enlarged. The sensitive condition of the patient prevented a bimanual examination, and although a tumor of the bladder was suspected no positive diagnosis was made. The patient died of exhaustion. A bimanual examination after death showed the existence of a tumor. At the autopsy a sarcomatous tumor three inches in diameter was found attached to the posterior surface of the bladder. It had a pedicle the size of the finger.

Necrosis of the Cricoid Cartilage; Tracheotomy.—Dr. S. Seabury Jones presented a portion of necrosed cartilage which had been expelled from the larynx under the following circumstances: The patient first came under observation during November, 1877, when he was supposed to be suffering from typho-malarial fever. An examination, however, revealed the presence of tertiary syphilis. There were very sensitive nodes on the tibia and parietal and frontal bones. There was also ulceration of the pharynx and larynx. The initial lesion occurred twelve years previously, and was followed by the usual secondary symptoms in the succeeding year. When he was seen by Dr. Jones he was placed under appropriate treatment, and rapidly improved for two months. At the end of that time the cough became more troublesome, and was complicated by spasmodic attacks of dyspnœa. On January 8, 1878, he coughed up a portion of necrosed bone, and the same day swallowed another piece. On January 28th, while suffering from extreme dyspnœa, tracheotomy was performed. The tube was worn till the last of May, when it was removed. The patient was then examined by Dr. Beverly Robinson, who found paralysis of the right vocal cord, and diminution of the calibre of the glottis to one-half. There was no return of the laryngeal spasms after the removal of the tube, and no dyspnœa except on severe exertion. At the time of the report the condition of the patient was very favorable, he having gained fifty pounds since the operation.

Excision of the Head of Femur for Intracapsular Fracture.—Dr. James W. Howe presented the head of the femur which he removed from a patient suffering from ununited intracapsular fracture of the neck of femur, of long standing. The history was as follows: A woman aged sixty-two entered Charity Hospital, March, 1876, with intracapsular fracture of the neck of the femur of three months' standing. After her admission to hospital a plaster-of-Paris bandage was applied to the extremity and retained in position for ten weeks; at the end of that time an examination showed no change. Slight extension with a long splint was then used for six weeks, but without benefit. The patient was then allowed to get up and move about by means of crutches—the foot being supported by a sling. The pain attending the use of the limb was so great that it had to be discontinued after twenty-four hours. During the eleven weeks following she remained in bed, and at the end of that time the condition was unchanged.

Dr. Howe then decided to remove the head of the femur. A semilunar incision four inches in length was made, and the joint opened in the usual manner. About a drachm of inspissated pus was found in the cavity of the articulation, mixed with small fragments of bone. The neck of the femur was completely absorbed, and the connection between the globular head and the femur was by means of a narrow band of fibrous tissue. A sharp spicula of bone was found at the inner side of the lower fragment. The effect of this upon the surrounding tissues was the cause of the severe pain in motion.

The head, detritus, and spicula were removed, and the joint washed out with a solution of carbolic acid. The wound was then packed with oakum, and Buck's extension applied. A long splint was adopted to keep the limb in position. After six weeks it was found that no pain was felt on motion. A plaster-of-Paris splint was then applied with an opening corresponding to the position of the wound. Three months after the performance of the operation the wound was completely healed and she was able to move around on crutches without pain.

The limb, however, was completely useless, from the atrophy of the muscle following the protracted want of exercise of the limb. The joint was completely movable. Latterly symptoms of inflammation appeared in the knee. In other respects she is in good health.

Dr. Howe thought there was no good reason why ligamentous union should not have resulted after the injury, as she was in a good physical condition; and he was of the opinion that it would have been better to have performed the operation earlier, before the muscles were paralyzed from want of use. In patients not debilitated, he thought it would be well to perform excision three months after the fracture if at that time crepitation and non-union were discoverable. Dr. Erskine Mason considered the case to be unique. Dr. Howe was not aware of a similar case on record.

Dr. L. A. Stimson thought that considerable difficulty was frequently found in the differential diagnosis of fracture without and within the capsule.

Suppurative Arthritis of Knee.—Dr. George T. Shrady presented a specimen of disease of the knee-joint, which had been removed from a patient at the Presbyterian Hospital on October 17th. A boy, aged seventeen, was admitted to hospital during September suffering from suppurative arthritis of knee. During May, 1876, he was attacked with severe pain over the inner condyle of the right femur, and a few days later the knee-joint became swollen. The pain continued for five weeks, when an abscess opened on the outer side of the thigh and just above the knee; four or five days later a similar opening took place on the inner side of the thigh. From that time till his admission to hospital, anchylosis of an angular form occurred, and three other openings appeared in the neighborhood of the knee.

On admission to hospital the case closely resembled an ordinary case of white-swelling in an advanced stage. There was also a globular swelling over the condyle. On passing the probe into the sinus above the joint, dead bone was discovered. The condition of the patient was not favorable for an operation, but after a consultation it was deemed advisable to amputate the thigh in order to give him the best chance for his life. The operation of exsection was considered, but the extensive disease of the femur rendered it unadvisable. After amputation the wound healed in great part by first intention.

An examination of the specimen showed the lower part of the femur thickened, eburnated in part and softened in part. It was cavernous, and contained parts of a sequestrum. Both condyles were enlarged and softened. Complete bony anchylosis existed between the inner condyle and head of tibia.

The articular cartilages of the joint were eroded at several points. The condyles of the tibia were enlarged, but the bone below was markedly atrophied. The patella was immovable and adherent to the femur. The ligamentous tissues around the joint were infiltrated with fibrinous exudation, and adherent to the joint. Dr. Shrady said the clinical history and pathological condition of the specimen would seem to point to a periostitis of the lower part of the femur as the starting-point of the disease, and subsequently an osteitis of the spongy tissue of the articular extremities, which destroyed the cartilages of the joint in part, and resulted in bony anchylosis.

Rapid Removal of Stone by Lithotrity.—Dr. E. L. Keyes presented specimens of stone rapidly removed by lithotrity. The first patient was a man aged sixty-three, and at a single sitting of forty-two minutes one drachm and a half of detritus was obtained by Dr. Van Buren in three crushings. The patient suffered but little during the operation. The second patient was aged seventy. The stone was of the uric acid variety, and was entirely evacuated in forty-five minutes. No bad result followed the operation. The third specimen was a hair-pin covered with phosphates, removed from a girl five years of age by dilatation of the urethra. The clitoris was elongated, and a fourth of an inch in diameter.

Rupture of Cyst of Broad Ligament; Hæmorrhage into the Peritonæum.—Dr. Satterthwaite presented a cyst of the broad ligament which had ruptured and caused hæmorrhage into the peritonæum. The patient was seen soon after the accident and was moribund. The autopsy showed extensive hæmorrhage into the peritonæum, but no evidences of peritonitis. A ruptured cyst was found in the broad ligament between the uterus and right ovary.

Stated Meeting, November 13, 1878

Dr. John C. Peters, President.

Report of Microscopical Committee.—Dr. Wesley M. Carpenter reported on behalf of the microscopical committee that the specimen of disease of the pylorus, presented by Dr. Blumenthal, consisted of fibrous tissue and not of cancer. The tumor of the choroid plexus, removed from a horse and presented by Dr. Liautard, was made up of fibrous tissue and calcareous matter.

Stricture of Urethra.—Dr. F. N. Otis presented a specimen of stricture of the urethra sent to him by Dr. Stuart Eldridge, surgeon of the General Hospital of Yokohama, Japan. The full history of the case, with illustration of the specimen, was published in the Journal for November, 1868, page 509.

Puncture of the Eye by a Dart.—Dr. Joseph W. Howe presented an eye which he had recently removed from a man thirty-five years of age. He was the proprietor of a shooting-gallery, and while standing three feet from an air-gun was struck in his eye by one of the small metallic darts. The dart entered the eye at the cornea-sclerotic junction and pierced it for three-fourths of an inch. The patient was seen four hours after injury, and was at that time suffering from severe shock. An attempt was made to remove the dart but without success, as in the effort the feather on the end spread out like a fan. After three days the patient consented to the removal of the eye. This was performed in the usual way. The dart was found to have passed to the fundus of the eye, but had not pierced it posteriorly. The man did well, and was able to walk about after two weeks. The force of the dart could be estimated by the fact that at fifteen paces it pierced an oak board to the depth of three-fourths of an inch. Dr. Noyes said that it was unusual for foreign bodies to pierce the posterior surface of the globe.

Pistol-Bullet passing through Right Ventricle, Septum, and Aorta.—Dr. V. P. Gibney presented a rare specimen of pistol-shot wound of the heart, in which the ball passed through the right ventricle, septum, and aorta. The specimen was sent by Dr. F. M. Holly, of Greenwich, Connecticut. The history was as follows: A man, aged eighteen, was accidentally shot, July 7, 1878, by a Smith and Wesson revolver. Calibre $\frac{22}{100}$ inch. He was seen by Dr. Mead an hour after the injury, and was then in a state of partial collapse, from which he subsequently rallied. He had no remembrance of the shooting, or of having fallen into a brook near to which he was sitting. He recovered quickly without any unfavorable symptoms, except slight dyspnœa and slight pleuritic pain on both sides for a few days, and at the expiration of a fortnight was sufficiently well to resume work. He was engaged as a farm-hand, and was able to do his usual duties till August 30, when, after a hearty breakfast, he went into the field and was found, after twenty minutes, dead behind the plow.

Autopsy.—A small cicatrix was seen near the left nipple, an inch and three-quarters above and toward the median line. On opening the thorax the left pleura and pericardium were found distended with serum and coagulated blood. A small cicatrix existed on the upper lobe of the left lung in line with the external cicatrix. Beneath, an opening one-fourth of an inch in diameter was found in the pericardium.

The lung was adherent by firm bands to the pleura and pericardium in the neighborhood of the wound. Opposite the opening in the pericardium, and on the anterior surface of the right ventricle, a small aneurismal sac, the size of a hazelnut, was found ruptured. The walls of this sac were very thin, and a probe introduced in the rent passed into the ventricular cavity. The rupture of this aneurismal sac was the cause of the extravasation of blood into the pericardium and pleura with sudden death. A careful search was made for the ball, but without success. Dr. Gibney said that when he received the specimen he opened the left ventricle and found the ball lying behind one of the pillars of the columnæ carneæ, above and to the left of the apex of the cavity. On a more careful examination, an opening was traced through the upper portion of the septum and contiguous semilunar valve, through the aorta itself, to the left auricle. All these openings were found on a line with the opening into the right ventricle. Dr. Gibney thought it was evident that the spent ball encountered a filled left auricle and dropped down through the auriculo-ventricular opening and lodged at the site where it was found in the specimen. A delicate membrane covered the ball. The sac on the outer side of the ventricle seemed to be the parietal layer of the pericardium, and was probably formed by the blood forced out during the contraction of the heart. The wound in the heart was valvular, and the pericardium, quickly uniting to it, completely closed the opening. Dr. Gibney said that Dr. Samuel Purple had gathered some valuable statistics on the subject of gunshot wounds of the heart, which were published in the NEW YORK MEDICAL JOURNAL, May, 1855.

The specimen presented by Dr. FRANK H. HAMILTON before the Society was the most remarkable on record in regard to the length of time, the patient living for twenty years after the accident. Dr. Hamilton, when presenting his specimen, referred to a case reported by Dr. Hopkins, of Ohio, where a man lived fifteen days with a pistol-ball in the left ventricle.

Dr. GIBNEY thought that what was more remarkable than the penetration of the heart was the fact of the ball passing through the aorta at its commencement.

Amputation of Hand.—Dr. BRIDDON presented the hand of Dr. Daniel F. Leavitt, which he had amputated. Dr. Leavitt had received a crushing injury of the hand, and amputation at the wrist-joint was performed. It was found that the only serviceable flap to be obtained was from the anterior surface of the hand and wrist.

Lumbo-Colotomy; the Jejunum mistaken for the Colon.—An interesting specimen was presented by Dr. BRIDDON, on which, during the operation for lumbo-colotomy, the jejunum was secured instead of the colon. The history was as follows: A female inmate of the Colored Home, aged thirty, had been for some time suffering from stricture of the rectum. She was much debilitated from the effects of syphilis, and had several perineal fistulæ. The stricture was situated high up, and at different times the patient suffered from dangerous attacks of intestinal obstruction. It was decided to perform lumbo-colotomy as the best means of alleviating the dangerous condition of the patient. The operation was attempted by Dr. Briddon, assisted by Drs. A. C. Post, George F. Shrady, and Joseph W. Howe. The point of election was situated half an inch behind the centre of the ilium on the left side, and an incision was made between the lower border of the ribs and the crest of the ilium. The outer border of the quadratus lumborum was clearly exposed, and on dividing its fascia a small portion of fat projected into the wound, followed by the intestine, which was covered by filamentous tissue. After tearing this away, the exposed gut looked precisely like the colon. It was then transfixed in the usual way and attached to the integument by sutures.

For five or six days the patient did well, but subsequently sank, and died on the tenth day following the operation. The only noteworthy circumstance following the operation was the thin character of the discharges, which caused a good deal of excoriation around the edges of the wound.

The autopsy was performed by Dr. F. E. Russel. It was found that a loop of intestine, situated six and a half feet from the pyloric end of the stomach, was that upon which the operation was performed. There was local peritonitis, confined to the immediate vicinity of the artificial anus. The colon was greatly contracted from its splenic curvature to the anus, at some points its diameter being less than half an inch. It was situated half an inch within the external border of the quadratus lumborum; its coats were opaque, thickened, contracted, and wanting in its usual resiliency. Near the rectum several spots of ulceration were detected. The sequence of events in the operation, as shown by the *post-mortem* appearances, were that, after section of the deep abdominal fascia, the loop of intestine covered with peritonæum escaped into the wound, forming a hernial protrusion. The peritonæum was only cut when the gut was transfixed and the artificial anus formed.

Dr. Briddon said that he did not know how a similar accident could be prevented in another operation. The wound was immediately external to the deep landmark, the quadratus lumborum, and at the precise spot where the colon usually rests. No doubt was entertained by any of the surgeons present at the operation in regard to the fact that the incised gut was the colon.

Dr. Erskine Mason believed that it was impossible to tell in the operation for lumbo-colotomy whether the presenting intestine was or was not the colon. In a case of his own, the small intestine was opened by mistake, and none of the surgeons present had the slightest doubt in regard to the presence of the colon. At the autopsy the colon was found drawn to the median line by false membrane.

Epithelial Cancer of Inner Canthus of Eye; Removal; Plastic Operation.—Dr. H. D. Noyes described a case of epithelial cancer of the eye, in which he performed extirpation, and subsequently a plastic operation, to fill the cavity and form a new canthus. The woman was fifty-eight years old, and noticed nineteen years ago a small tumor on the lower lid of the eye. It remained stationary for ten years, and then slowly increased and became ulcerated. One year ago it made rapid progress, and extended nearly to the lachrymal sac, involving the inner canthus. Dr. Noyes said that two things were indicated in the case: a complete extirpation of the diseased tissues, and a plastic operation to prevent deformity. The growth was pretty thoroughly removed by the scissors, and all suspicious tissues were destroyed by the actual cautery. The lachrymal sac was exposed, but not injured. In regard to the reparation of the canthus, an incision was carried from the outer border of the wound on the lower lid outward to the ear. Another incision was carried downward from the lachrymal sac along the border of the nose. The cheek was then thoroughly dissected off as far down as Steno's duct. The flap thus formed was carried upward and inward, and secured by means of hare-lip pins, so that the upper angle rested at the site of the inner canthus. There yet remained a deficiency of the inner part of the upper lid, as well as the contiguous surface of the nose. This it was attempted to remedy by transplanting a piece of skin from the arm. For three days the graft did well, but then completely sloughed. Dr. Noyes thought that the sloughing might probably have been caused from the flap resting on the charred tissue following the use of the actual cautery. The gap was eventually filled by carrying a flap downward from the bridge of the nose.

The tumor was examined by Dr. C. S. Bull, and pronounced to be epithelial cancer.

Dr. Ripley asked Dr. Noyes what his experience was in regard to the return of the disease.

Dr. Noyes had seen few relapses. If return took place in other parts of the body, the cases would not fall under his notice.

Removal of Epithelioma of Conjunctiva without Injury to the Sight.—Dr. Noyes presented a patient from whom he had removed a melanotic tumor of the cornea, without subsequent impairment of vision. The specimen had accidentally been destroyed, but fragments of it were examined by Drs. Satterthwaite and C. S. Bull, and pronounced by them to be epithelial cancer. Dr. Noyes said it was the first case that had come under his notice where a tumor of the eye could be removed without destruction of sight. He found, however, on examining the literature of the subject, a number of similar cases had been reported. The history of the case presented was as follows: A man, aged forty-eight, noticed seventeen years ago a black spot on the white of the left eye. For twelve years it remained stationary, but since that time had commenced to grow. During the past year the increase had been marked, and particularly so within the preceding month. At the time of the operation the mass was the size and appearance of a blackberry, and bled when it was handled. It overlapped the outer half of the cornea and sclera; the eyeball was not affected. It was not adherent to the cornea. The conjunctiva was stained by pigment, resembling the effect produced by the continued use of nitrate of silver. The tumor was removed, and the flaps brought together without injuring the eyeball. The interest of the case in part rested on the differential diagnosis of malignant and non-malignant tumors. In a case presented by Dr. Knapp to the society five years ago, in which he removed the eye, the growth had returned, and, at the time of operation, was found to have invaded the upper layers of the cornea. Dr. Noyes had collected thirty-five cases of the class of disease presented, and found that, in nine cases where the operation was performed, in one case no return of the tumor occurred in ten years; in another, none in two years; in another, none in eight months; in another, none in two years; in another, none in one year; and in another, the tumor returned three times, and had not returned again after eight years. In one case, after removal a second time no return occurred after six years. Dr. Noyes said there was a class of non-pigmented growths, closely resembling the pigmented ones. The pigment seemed to be an accident, and of no value in determining the malignancy of the disease.

Large Calculus.—Dr. R. F. Weir presented a large calculus, weighing 12½ ounces, measuring 3⅜ inches by 3⅛ inches, and 2¼ inches thick. It was removed by Dr. Gardner, of Long Island, by means of the bilateral section. The operation lasted fifty-five minutes, and was commenced by making the ordinary lateral incision; this was converted into the bilateral, and with much difficulty the stone was removed. The rectum was not lacerated during the operation; but subsequently a rectal fistula occurred, which closed without difficulty.

Mulberry Calculus.—Dr. Weir also presented a mulberry calculus, which he had removed by the lateral operation. Lithotrity was attempted by Bigelow's instrument, but the stone was so hard that it broke the lithotrite. After the operation, retention of urine occurred; but, after a short time, the flow took place through the wound. The cause of the retention was probably due to the swelling of the sides of the wound.

Dr. Erskine Mason had seen a case of operation for stone in which retention followed but did not continue. It occurred, as in Dr. Weir's case, in a patient having a deep perinæum. The cause of the retention was the swelling of the cut surfaces of the bladder.

AMERICAN DERMATOLOGICAL ASSOCIATION.

(Continued from October number.)

Second Day.—Afternoon Session.—The first paper on the list for the afternoon was one by Dr. J. N. Hyde, of Chicago; but, the author not being able to be present, it was not read.

The next in order was a "Case of Gangrænopsis," by Dr. Piffard. The child in whom it occurred was one year old, and, together with its mother, was suffering from syphilis. In ten days from the first development of the gangrenous lesion it died; and by this time nearly the whole face was involved, and the nose, upper lip and adjoining border of cheeks had been destroyed, in spite of treatment. Dr. Piffard made the following remarks on the case: "In times formerly, when mercury was more freely used than at present, cases similar to the one related were by no means excessively rare. This one, however, is the first that the writer has had the ill-fortune to encounter. As regards the etiology of this case, but two hypotheses seem tenable: It was either malignant pustule or mercurial gangrene. Which of the two it was the writer feels himself unable to positively decide; the probabilities, however, he thinks, are in favor of its having been a case of mercurial poisoning." It was a remarkable fact in this connection that the child had only been under mercurial treatment (by inunction) about two days when the gangrene originated (photograph presented).

Dr. White asked Dr. Piffard why he considered it more probably mercurial in its origin, and the latter replied, simply because he could find no other assignable cause.

Dr. Duhring remarked that he should hesitate before attributing such a pathological process to mercury. It was certainly an open question; but he thought the trouble most probably of internal origin, and obscure.

Dr. White then inquired if it were known that mercury ever produced such rapid destruction of tissue, and Dr. Piffard replied that, in former years, when mercury was employed so heroically, a number of such cases had been recorded.

Dr. Taylor believed that gangrene of the mouth was sometimes of idiopathic origin, in other words, in patients in whom no morbid constitutional condition could be discovered.

Dr. Heitzmann stated that most of those which he had seen had arisen in connection with scarlet fever.

Dr. Sherwell said that his assistant had been treating two cases of this affection within the last ten days. One had resulted from scarlatina; but no cause was assigned for the other, except that the child in whom it occurred was strumous.

Dr. Duhring said that, in reply to the President's last question, he would mention a case which had occurred in his ward at the Philadelphia Hospital. A young girl was suffering from a syphilitic lesion of the nose and forehead, and the external treatment adopted for it by the house physician was the dusting of calomel upon the parts. Presently an extensive destruction of tissue resulted, the whole cheek becoming completely eroded. The *interne*, thinking this was no doubt due to the syphilitic disease, continued the applications of calomel as before. When Dr. Duhring saw the case, he recognized at once that the appearances were very different from those seen in ordinary cancrum oris; and, suspecting that the mercurial treatment was the cause of the trouble, he at once ordered the latter to be discontinued, and the patient from that time began to recover.

Dr. SHERWELL next read a paper on "The Use of Linseed and Oil as Therapeutic Agents in Diseases of the Skin." He commenced by saying that a few months ago he had read a paper on the same subject before the New York Dermatological Society, a brief abstract of which had been published in in the *New York Medical Record* of April 13, 1878, and that he would now reiterate to some extent what he then said, but at the same time would present some new cases and make a further amplification of the subject. Every dermatologist, he said, had seen the necessity of introducing fats into the system, and hitherto almost the only available hydro-carbon had been cod-liver oil. This disagreed with many patients, and was also open to a number of other objections; while, in the more palatable form of the commercial emulsions now frequently employed, he did not consider it reliable. A more assimilable fat was therefore desirable, and he thought he had discovered it in the flaxseed. He had been induced to try its use by observing the beneficial effects of linseed-cake upon cattle and horses, both in making their coats sleek and improving their general condition; and his experience had shown that the agent was of equal service to the human economy. He was in the habit of employing it in a threefold administration.

1. If the patient were a male and had sound teeth, the seed itself was the best form in which to take it. The man could carry about ten ounces of this in his pockets, and would

probably consume a teacupful in the course of a day. The ordinary domestic linseed was small and dark in color, and contained only about 20 per cent. of oil; while that from Bombay or Calcutta (which was the kind recommended) was larger, lighter in color, and contained about 30 per cent. of oil.

2. In the case of women or children the ground seed, mixed with milk in the form of a porridge, was more desirable, and was unpalatable to very few persons.

3. In certain cases it could be given in the form of bread, although he did not consider this method quite so efficient as the others. The bread could be made by mixing linseed meal with flour in any proportion desired. This had been suggested to him by Dr. Piffard. (A loaf containing 60 per cent. of the meal was here presented to the association, and was tasted by one or two of the members.)

When linseed was eaten, a natural emulsification was performed with the recent oil found in the stomach, and it had been established by chemists that a recent oil was much more active than one which had been long exposed to oxidation. The hulls also served to stimulate the peristaltic action of the intestines. He believed that it had specific virtues in dry and scaly diseases of the skin, such as pityriasis rubra, ichthyosis, and dry eczema, both on account of its special action upon the sebaceous secretion and its effect in improving the general condition of the patient. Dr. Sherwell then gave in detail four cases of great obstinacy and severity, in which its curative influence was most happily shown. Two of them were cases of pityriasis rubra, one of pemphigus foliasis, and one of pemphigus vulgaris. He had also employed it with most marked benefit in four cases of ichthyosis, and had cured a large number of cases of chronic eczema with it. The seed was given internally in one of the forms above mentioned, and the oil applied externally. The lubricating effect of the latter was most admirable, and it had the advantage over most other oils of not becoming rancid when exposed to degraded epithelium. In eczema he was in the habit of wrapping the parts affected in a number of folds of linen saturated with it. He believed that flaxseed was a specific remedy for the sebaceous glands, increasing their secretion when it was diminished, and restoring it to its natural character when it had been altered by disease.

Dr. Van Harlingen stated that he had used linseed only in one case, and that was in the form of the oil internally; but he thought there was no beneficial result from it. This, he said, might possibly have been due to the fact that he used the ordinary domestic oil, and not that made from Bombay linseed.

Dr. Piffard said he had used the linseed only internally, and he thought it was better than cod-liver oil in many respects. Cod-liver oil itself was fattening, while the iodine which it contained was just the reverse of this; and he thought this might explain why it was that it was impossible to fatten some persons on cod-liver oil. The linseed, he believed, contained no starch, and it was, therefore, especially useful in diabetic patients with skin trouble, as well as affording an agreeable change of diet to them. The taste of this bread was not agreeable to many individuals at first; but it was, at all events, much more agreeable than cod-liver oil.

Dr. White remarked that the so-called breads for diabetics invariably contained a certain amount of starch, and, therefore, if linseed was really free from starch, it was an important point to remember.

The next paper was one by Dr. Atkinson on "The Botanical Relations of the Trichophyton Tonsurans," of which the following is an abstract:

Previous investigations into the botanical relations of the microscopic vegetations, giving rise to certain skin-diseases, have been fallacious on account of the faulty methods employed. Cultures on exposed nutrient soils so inevitably become overwhelmed by adventitious growths as to make it impossible to draw correct conclusions from them. Very objectionable, also, are the protected slide and mass cultures, employed recently, since these must frequently be exposed to contamination in the intervals of their exposure for various purposes of observation, etc. A method guaranteeing absolute purity to the cultivation after the sowing is that employed by Van Tieghem and Le Monnier, in their researches into the mucorini. This may be called cell-culture, and is as follows: A glass ring, four to five mm. in height by about fifteen mm. in diameter, is cemented to a glass slide; the fungus is then sown in an appropriate nutritive fluid upon a very thin cover-glass. The cell is then completed by laying the cover-glass, with the nutrient drop underneath, upon the ring, a drop of oil upon the latter serving to protect the cell from external influences. All possible precautions must be used to secure purity to the fluids and appliances employed. Into a cell like this a small bit of hair-shaft is sown. Orange-juice and Pasteur's fluids, boiled and filtered, are the most appropriate fluids. In most of the cells there will be no change, while some will develop mould of adventitious growth, or bacteria. In a few cells a development takes place which is characteristic, and due to the "trichophyton." It may easily be distinguished from growth of foreign fungus; the latter either thrusts its hyphæ from without under the cover-glass, or springs from one or two points in the drop, and sends out radiating hyphæ, the trichophyton spores remaining quiescent. The successful cultivation shows a simultaneous, uniform, multitudinous growth of hyphæ, sometimes accompanied by swelling of the spores to many times their original size. (Figure shown.) The latter, however, soon ceases as the hyphæ increase. This activity begins to show itself in from twenty-four to thirty-six hours, or even later, and is completed in about ten days. The tendency of the hyphæ, when freely nourished, is to form a dense myceline and but few reproductive organs. When scantily nourished, these organs more rapidly appear, either with or without the formation of septa in the hyphæ. These reproductive organs are sporangial. They do not produce, except occasionally, columellæ, there usually being transverse septa, dividing them from the hyphæ. The sporangia of mucor may be arrested or deformed by unfavorable influences, as is the case here. There is also frequently shown an indication of brood-cell formation, as occurs in mucor mucedo. This, in cell culture, is never completed. Under more favorable influences, these probably really form brood-cells. The fungus, then, belongs to the mucors, and is probably mucor mucedo. That, in the very much larger proportion of cells, the sowing can be effected so as to secure an absolute freedom from foreign spores is proved by the fact that, in those cells which did not germinate, it was the rarest occurrence to observe any other growth. When they occurred, the latter was totally unlike the style of growth of trichophyton. The trichophyton invariably showed a medusa-like growth of multitudes of spores. In no successful culture was any other than the result reported obtained. These results were also obtained in slide cultures, but could only be recognized in the confusing mass of adventitious fungus, through the knowledge gained in cell cultivation. The method is simple, and only requires care and perseverance, in spite of the many disappointments arising from the difficulty of succeeding in cultivations. (The paper was illustrated by drawings representing different periods in the cell culture.)

Dr. Heitzmann said that in his laboratory in New York very thorough examinations of spores had been made, especially by Dr. Hasslock.

The principal ones chosen were those taken from patients suffering from thrush, and those of the yeast-plant; and the investigations were made with the idea of finding out how the process of development went on. An immense new growth was frequently observed within a few hours, and in the microscopical studies staining was sometimes resorted to, and sometimes not. The material used for staining was a one-half per cent. solution of chloride of gold, and the results obtained with it were excellent. Dr. Hasslock had demonstrated that connecting threads could be seen in vegetable as well as in animal life. The living matter which formed the granules was observed to increase (the spore in the mean while becoming conical in shape); but it still remained homogeneous and solid. Later, it became split up into a network, while vacuoles appeared; and this was shown in Figs. 3 and 4 of Dr. Atkinson's drawings. The large outgrowths seen were pale in color and fruitless.

Dr. Piffard remarked that he had always been of the opinion that such large sporangia were capable of producing spores, and he considered that the evidence which Dr. Hertzmann had adduced to the contrary was simply negative.

Other observers gave positive evidence of their being fruitful.

Dr. Atkinson thought that, while in a large number of instances the sporangia did not produce spores, yet in some instances they really were productive.

After some further discussion, the last paper of this session was read by Dr. Van Harlingen, on a "Case of Ulcerative Scrofuloderm." The patient, in whom the rare form of disease described occurred, was a female, seventy years of age, who had had eleven children. When fifty years old she noticed a gradually-increasing roughness of the skin upon the legs, and later, small patches, gray in color, made their appearance. Six years ago she had an attack of small-pox (after which the skin began to itch), and four years ago the lesions, which had long existed on the lower part of the body, extended to the face. Slight ulcerations occurred at times, and she was told that she was suffering from leprosy, which had a depressing effect upon her mind.

When first seen, in February, 1878, it was observed that she appeared older than her years, and that she was considerably emaciated. Over almost the entire surface of the body the skin was covered with fine scales, and was of a brownish-red color, except upon the legs, where it was ashen gray; while in many parts there were deep, profusely suppurating ulcers. There was also a singular group of hard, gray nodules about the right elbow, and on some portions of the body were irregular patches of dead, white skin, which were the scars left by former ulcerations. Besides the various ulcerating patches there were numerous others on different parts of the body in which the surface was smooth, denuded of epidermis, and slightly weeping. The scalp remained unaffected, except in the temporal and parietal region, and the point of the nose was also free from disease; though on other parts of the nose there were tuberculous lesions, hard and not ulcerated. One of the cervical glands was as large as a hen's egg, but had been thus enlarged for many years. Below the knees the disease diminished in intensity, and the appearance of the lower part of the legs was almost like ichthyosis. The soles of the feet were not at all affected, and the palms of the hands only to a slight extent. There seemed to be some improvement in the patient's condition when treatment was first commenced; but in April she was obliged to take to bed. The ulcerations continued after that to increase steadily in number and severity, at length involving even the soles of the feet; and she finally died from exhaustion.

The autopsy was made by Dr. Morris Longstreth; and, as the crusts had all been washed off immediately after death, the numerous ulcerations, of various size and shape, made the body look as if it had been tattooed all over in arabesque designs. Calcareous nodules were found in many of the internal organs, as well as enlarged glands at the base of the lungs. From these facts, and a history of so-called scrofula in the patient's family, Dr. Van Harlingen had deemed it best to designate the disease as scrofulous in character. Under the microscope, the horny and mucous layers of the skin seemed normal, while the upper and middle layers of the corium were densely infiltrated—the lower ones to a less extent. (Specimens presented.)

Dr. Duhring remarked that he first saw the case eighteen months or two years ago, at the Dispensary for Diseases of the Skin in Philadelphia, and at that time he thought it might perhaps be an old infiltrated eczema, though unable to arrive at a positive diagnosis. When he saw the case a year later, in consultation with Dr. Van Harlingen, he was much astonished at the great change which had taken place in it, and was still less able to form a decided opinion as to its character. He had never seen anything like it before; and one point that struck him particularly was the comparatively good general health of the patient (almost up to the last), notwithstanding the very great extent of the disease. In addition to the points mentioned by Dr. Van Harlingen, the infiltrated cells, as seen under the microscope, would seem to indicate scrofuloderm.

Dr. Piffard thought that to attempt to classify diseases of the skin by their microscopic appearances was futile. The specimens which had been presented by Dr. Van Harlingen might just as well have come from a chancre as from the disease in question, as there was nothing characteristic about them.

Third Day. Morning Session.—At the regular business meeting Dr. R. W. Taylor read a paper entitled: "A Further Contribution to the Study of the Xeroderma of Hebra." He called attention to the fact that his studies of this disease were commenced in 1873, when a case of much interest presented itself to him. Since then he had the opportunity of further study in six cases, being in all seven. In 1877, at the first meeting of the American Dermatological Association, Dr. Taylor presented the result of his studies in a long paper. As there were several points left at that time in an unsettled state, he had during the past year carefully studied, having had favorable opportunities, four of the seven cases. He remarked that the disease had especial interest, as until his paper was published it was wholly undescribed in this country, and only mentioned twice in Germany. One of the cases related last year, he regretted to say, had since died under painful circumstances. He hoped now to be able to clear up some points in connection with it which last year had seemed obscure, and further to give it an appropriate name. He proposed on this occasion to carefully follow the course of some of the lesions, and to determine, if possible, the real nature of the disease.

One of the most noticeable characteristics of the affection was a vast number of pigmented spots scattered over the face, neck, forearms, and, exceptionally, the legs. Another very important lesion, bearing a distinct relation to the brown spots, consisted in certain little red spots, which were, however, less prominent and rather less numerous than the dark ones. In addition, in various portions of the face, hands, and some other parts, there were atrophied patches, as well as certain tumors.

First, as to the pigmented spots or freckles: During the past year he had found that these were not necessarily permanent, but that in certain localities, particularly where atrophy existed, they came and went, fading and being replaced by other similar spots. They varied in color from a light brown to black, and he had ascertained that the deposit of pigment was so marked in some instances that the black spots resembled very closely the appearance of gunpowder blown into the skin, and little masses could actually be dug out with a knife. These spots were slightly elevated, irregular, and not numerous. This feature, which he only observed in a perfected state during the present summer, had occurred in one of the cases in which the disease was very persistent, the brown spots appearing and disappearing.

Last year, as before stated, he was under the impression that the freckles were permanent. This he still thought was the case as a rule everywhere, especially on the hands; but he had ascertained during the past year that it was not so on the face. In order to explain this he would go on now to speak of the red spots. The larger ones were from a line to a line and a half in diameter, some slightly elevated, others not, and varied very greatly in shape. The smaller ones were exceedingly minute, and would often escape detection unless looked for very carefully. These red spots had a rather more definite course; and he had at times noticed the appearance of new ones within forty-eight hours. They appeared to him to be the starting-point of the disease, and he believed them to be a new formation of vessels undoubtedly of the superficial capillaries. He had found that the brown spots invariably appeared in the exact positions previously occupied by the red ones, and this seemed to him a most important point in determining the nature of the disease.

If these changes were carefully studied in any part, it was observed that a vessel first underwent enlargement and became prominent, forming a red spot, and then, undoubtedly, it disappeared by atrophy, the brown spot being left, partaking of the conformation of the vessel spot. Many of the red spots were no larger than the point of the finest needle, and they could frequently be seen mingled with the brown ones. Some of them increased in size, while some remained unenlarged, and finally produced the minutest of the brown spots. These observations had led him to the conclusion that the brown spots were in fact the anatomical result of the red ones. When the blood-vessel became enlarged, and the subject of chronic stasis, the hæmatoidin was exuded through its walls. But further, we might entertain the theory that the increased vascularity might possibly induce an abnormal production of pigment cells in the part. Microscopic sections showed that the pigment was increased to an enormous amount.

He had noticed, further, that sometimes the red spots seemed to develop rapidly for a time, and then cease to appear altogether; and in one case under observation there had been no new red spots for a year. He inferred, therefore, that these vascular phenomena might either go on progressively or remain entirely quiescent. It was a fact, also, that, when the vascular changes were most rapid, the most marked atrophic changes were produced. When there was an increase of the blood-vessels of a part, new cells were rapidly thrown out, and these then underwent retrograde metamorphosis, the process being accompanied by atrophy, which also involved the skin itself. Thus, if a spot on the cheek was watched for a time, it was seen that red spots came, were followed by brown ones, which then disappeared, and red ones came again, the latter again being replaced by brown ones. In these spots it could be seen that the atrophy of the skin was particularly well marked. It is probable that in such cases the process of vessel growth ends when all of the capillaries have become thus enlarged and subsequently atrophied. The atrophy of the skin takes place in proportion to the growth and atrophy of the vessels, and it is probable that the white cicatricial patches consist of such condensed skin-tissue that any vessels which may not have undergone the above-described morbid change are actually so constringed or pressed upon as to be obliterated.

Such being the course of the disease, he thought that it might be succinctly described as follows: first there is, after a general hyperæmic stage, dilatation of capillaries, then these increase in size by new growth of their elements. This gave rise to the red spots, which constituted the first stage of the disease. After remaining a variable period, these minute capillary new growths underwent atrophy, leaving on their site brown spots; this constituted the second stage, while the third was occupied in the continual new growth of vessels upon the site of those already atrophied, and in the subsequent atrophy of the skin itself. Several of his cases had demonstrated the fact that the atrophic stage might be wholly wanting in most parts invaded and only slight in certain parts, which were the face and dorsum of the hands. Hebra had undoubtedly only seen cases in which there was much atrophy ; hence he called it xeroderma, because the cicatricial skin felt dry. This conclusion, though erroneous, was perfectly natural, as Hebra only saw four cases, and they showed the disease in a severe type. The importance of several of Taylor's cases could not be overrated, as they showed that it was not inevitable that there should be such very severe atrophy and disfigurement. He, therefore, was certain that there were two types of the affection, a mild one in which there were at first red spots, which were followed by pigmented spots and which thus remained, having very little, if any, atrophy. In these cases the vessel growth occurs once, or certainly is not often repeated, and ceases, leaving permanent pigmentations. Such a child looks like one intensely freckled. In distinct contrast to this condition, which he now knew might be permanent, as the disease did not in these cases undergo any ulterior exacerbation, are those cases in which the process is repeated during years, and finally leaves the patient with the face and hands (the former most extensively, however) very much disfigured, the skin being profoundly disorganized and cicatricial, so that some spots were white, scar-like, others were brown with red spots interspersed. He was unable to make this distinction last year, but he now felt sure that this division would be accepted as the correct one. He could well understand why Dr. Duhring thought that Hebra and he exaggerated the extent of the atrophy, simply because his case was one of the mildest kind. He thought that such a case was not a fit one upon which to study the course of the disease, which begins in early childhood. It is probable, as Duhring's patient is now seventeen years old, there is not a single lesion in a progressive stage upon her. The girl bears the imprint of an affection which ran its course years ago, and her case is now only interesting in two principal points, first, the mild course of the affection, second, that having run its course it ceases, and has left little if any deformity, and only mild pigmentation. He thought that the prolonged study of his own cases, as well as a consideration of the details of the four cases of Hebra and Geber, warranted him in thus specifically dividing the disease into two forms. As to the amount of atrophy of the skin it varied; in the severest cases the whole face and hands might be involved, but in the mildest the amount of integument which underwent atrophy was about one-fiftieth of the whole extent involved in the pigmentation; in these, moreover, it might be very slight.

He wished now to call attention to still further manifestations, or sequelæ, of the disease. These occurred always, he believed, in the severest forms about the face, and consisted of the formation of a number of tumors; in addition to which there were sometimes atrophied spots without a trace of pigment, although the most marked pigmentation had formerly existed there. A year ago he had been disposed to think that there were two forms of tumor; but his later studies had induced him to believe the two were essentially the same, and only differed in the number of blood-vessels present in each. On the back of the neck in one case there was a nævus of considerable size, slightly pedunculated and elevated, and, in addition, smaller growths, of the size of half a pea. Here, then, were both a nævus and connective-tissue formations; but the microscope showed that the latter were really made up of vessels and new growths from them broken down into ulceration.

(*To be concluded.*)

Bibliographical and Literary Notes.

ART. I.—*Cyclopædia of the Practice of Medicine.* Edited by Dr. H. VON ZIEMSSEN. Vol. XIII. *Diseases of the Spinal Cord and Medulla Oblongata.* By Prof. WILHELM HEINRICH ERB. Translated by EDWARD G. GEOGHEGAN, M. D.; EDWARD W. SCHAUFFLER, M. D.; DAVID F. LINCOLN, M. D.; and JOHN A. McCREERY, M. D. A. H. BUCK, M. D., Editor of the American Edition. 8vo., pp. xii.–975. New York: William Wood & Co. 1878.

THIS volume is the fourth and last on the diseases of the nervous system, and aims to be a complete treatise on the subjects of which it treats. The name of the author will almost warrant a good book. He seems to have treated the several topics comprehensively, omitting nothing, we believe, which is essential in making the work complete. There is first presented a concise although clear description of the anatomy of the cord, followed by sections on the physiology, general pathology, symptomatology, diagnosis, and therapeutics, before entering upon the consideration of the special diseases. There is nothing especially worthy of remark in the plan of the work; the author gives, in most instances, the results of discussions rather than lengthy discussions themselves.

Erb is sufficiently explicit in his description of the minute anatomy of the cord for all practical purposes. He mentions Boll's recent descriptions of the neuroglia, his explanations of the "granules of Henle," etc. He expresses great caution in accepting unproved theories, and is not arbitrary in his decision of mooted questions. With regard to the ganglion cells, he alludes to the fact that some persons seek to establish a relationship between the shape, size, etc., of these cells and their functions. The author seems to believe in the existence of separate anatomical cells with trophic, vaso-motor, reflectory, automatic, and sensory functions; yet he disclaims any certain knowledge of their existence, and falls back upon pathological processes for the elucidation of the physiological problem. We will quote an opinion or two which the author expresses upon the subject, while speaking of the degenerative atrophy which takes place in the spinal palsy of children:

"It certainly can hardly be doubted any longer that the trophic centres for the motor nerves and muscles are situated within the gray substance of the cord, very close to the point where the anterior roots of the nerves concerned enter. While this is rendered exceedingly probable by the above facts ot local destruction of the anterior cornua, it is on the other hand strongly supported by the fact that the degenerative atrophy is absent, even in cases of the severest spinal paraplegia, when the corresponding sections of the gray substance are intact. . . .

"Of the nature of the connection between these trophic centres and the peripheral parts, of the manner in which, and the channels through which, their influence is distributed from the one to the other, we are ignorant; and the boldest hypotheses are allowable. Anatomy and physiology are not informed of the existence of proper trophic nerve-paths; but, of those who write upon the subject, one party regards them as a physiological postulate, while the other refers the transmission of trophic influences to the motor and sensory fibres. I have attempted to show,[1] by the comparison of a series of mutually corroborative cases, that the trophic paths cannot be fully identical with the motor. These facts certainly show that the motor and the trophic paths must be distinct at some points, as they are capable of being diseased independently of each other. Such separation certainly exists in the central organ, but it is yet doubtful how far outward it extends—whether motor and trophic fibres run separately as far as the periphery, or whether the motor fibres are also capable of conducting the excitation from the trophic centres" (pp. 116, 117).

With respect to the location of the trophic centres, it is stated on page 124 (speaking of bedsores):

"The exact location of these trophic centres is as little known to us as is the way they exercise their trophic influence upon the skin. Many things render it probable that they are to be found in the gray substance, especially in the central portions and the posterior cornua, and that the paths which begin in these parts are situated in the posterior roots. Observations of unilateral lesions of the cord have also made it probable that the trophic fibres for the skin decussate in the cord like the sensory fibres. The relations of the spinal ganglia to these processes are not clear."

While the so-called motor paths or fibres are distinct, Erb seems to think (accepting Max Schultze's view of the fibrillary structure of the ganglion cells) that there may be a possible union of fibres of different function in a single cell:

"It can easily be conceived how such a cell may form the point of union of fibrils of the greatest variety of physiological rank (motor, coördinatory, reflectory, etc.), which unite, in part, in the nerve-process, and enter the anterior roots. While thus the cell serves as the point of union for these various fibres, it is also capable of acting as a trophic centre for them, and of sending from its own substance trophic fibrils to the anterior root-fibres. The well-known fibrillary composition of the axis-cylinder would even permit us to dispense with the hypothesis of trophic nerve-fibres, as the axis-cylinder of the motor nerve may easily be supposed to contain fibrils of every variety of physiological function" (pp. 117, 118).

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[1] "Ein Fall von Bleilähmung," *Arch. f. Psych. u. Nervenkrankh.*, Bd. v., 1875, p. 445.

The author is decidedly of the opinion that the degenerative process does not depend upon mere *irritation* of the central nervous apparatus:

"We are, therefore, at present of the opinion that *a paralysis or destruction of the central trophic apparatus*, *or a separation from the peripheral parts*, *produces the symptoms of degenerative atrophy*."

A statement is made on page 143 which would seem to militate against the existence of separate trophic cells, or even centres, and make the nutritive changes explainable as Flint[1] puts it. The author, in explaining the occurrence of paralysis of the muscles of the eye in the early stage of tabes, says:

"We have at present no right to speak of this disease as depending on the spinal lesion; we know nothing of a trophic action of the spinal cord upon the cerebral nerves; we are forced to assume that the degenerative atrophy is localized simultaneously in several points of the cerebro-spinal axis."

Flint thinks changes in a few of the motor cells are sufficient to give rise to progressive muscular atrophy, and, with regard to the atrophy itself, he thinks, "if the nervous stimulus be progressively destroyed, the muscular tissue will necessarily undergo progressive degeneration and atrophy."

Erb says that the proper centres of coördination lie in the brain only, the special organs which seem to take the most prominent part being the corpora quadrigemini, thalami optici, and cerebellum. "It seems" (he says on p. 41) "that *the spinal cord contains only those paths of conduction which lead the coördination impulses to the muscles*, which, therefore, place the cerebral centres of coördination in connection with the anterior roots."

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[1] "A Text-Book of Human Physiology," pp. 142, 143.

Erb is inclined to judge from pathological facts that these coördinative paths lie in the white columns, or in their vicinity, and may possibly be connected with the several nerve-paths by the fine network of nerve-fibres. In the lumbar portion of the cord, Woroschiloff has shown that they lie in the middle third of the lateral columns.

With regard to the location of the vaso-motor centres, Erb is positive that they lie in the medulla oblongata, and may be "found throughout the length of the cord as far down as the lumbar region."

In the section on "General Symptomatology" a considerable space is devoted to the discussion of the nature of ataxia. Erb expresses himself positively against the theory that it is a disturbance of the *sensory* apparatus, and claims that it is due purely to *motor* changes. It is said that inability to walk with closed eyes need not necessarily exist in tabes, and when it does exist, "*it is simply an indication that the sensory control exercised by the soles of the feet, the joints, and the muscles, is insufficient.*" Disturbance of the muscular consciousness usually accompanies difficulty of standing with closed eyes.

The section on "General Diagnosis" is exceedingly clear, and presents in a nutshell many points of great interest. In that on "General Therapeutics" the author says that the action of electricity upon the cord is *catalytic;* "is probably quite independent of the direction of the current;" the especial action of the two poles is very obscure; and the passage of the current through the diseased region is the essential thing, provided, of course, the strength and duration of the current are regulated according to circumstances. He very properly alludes to the fact that the use of large electrodes is attended with less pain than the employment of small ones.

In the section on "Special Diseases" the author fills 107 pages with the consideration of "Tabes Dorsalis," which may seem to be proportionately more space than that given to other topics in the book. "Spinal Anæmia," "Spinal Irritation," and "Spinal Nervous Weakness," are described separately. The author thinks these affections are sufficiently distinct in their manifestations to merit separate consideration. He disclaims any knowledge of the pathology or morbid anatomy of spinal irritation, and classes it with the neuroses. The differentiation of the above-named affections is very nicely given, and it seems that he is borne out by experience in his course. About 150 pages are filled with a description of the "Diseases of the Medulla Oblongata."

The work seems well up with the times in every respect. The translation is, in the main, excellent; some of the translators, however, fall into a very common error of mistaking a nice meaning of words: for instance, "numerous" is frequently written where *many* would be more correct. Participles are often converted into nouns where, although possibly grammatically correct, it would seem less harsh to reconstruct the sentence in such a way that the participle be used as a verb, or that the noun be employed in its place.

Art. II.—*Clinical Lectures on Stricture of the Urethra, and other Disorders of the Urinary Organs.* By Reginald Harrison, F. R. C. S., Surgeon to the Liverpool Royal Infirmary, etc.

These eighteen lectures have been compiled, as the author states in his preface, "for the purpose of expressing my own views, and criticising those of others, upon points of practice which are still open to discussion and consideration." Eleven of them are devoted to the subject of stricture of the urethra —definition, causes, symptoms, consequences, and treatment. The remaining seven treat of foreign bodies in the urethra and bladder, hypertrophy of prostate, incontinence of urine, formation of calculi, cystitis, atony, calculous disorders, sounding for calculi, lithotomy, lithotrity, tumors of the bladder and prostate, villous growths, ulceration of the bladder, etc.

The author adopts Sir Henry Thompson's definition of stricture, and with him regards spasmodic stricture as temporary and not really constituting stricture. He, however, calls particular attention to the fact that there is a marked spasmodic element in all cases of organic stricture, and believes that to spasm alone the attacks of retention of urine are due. And yet on page 32 he relates a case of retention of urine, followed by rupture of the bladder, in which at the autopsy no evidence of organic stricture could be found, and he was forced to conclude that it was purely spasmodic. No argument is drawn from this, nor does it seem to suggest to him the possibility of mistaking spasmodic for organic stricture during life. The following quotations show with what importance he looks upon what may be called the premonitory symptoms of stricture: "A gleet is to be regarded as indicative of the early formation of stricture;" "Nay, further, you will not do wrongly in regarding a gleet as the stage in the stricture-forming process, when by your treatment you can promise your patient to restore his urethra to its normal condition;" "When a stricture is once allowed to become cicatricial in its character you may palliate or adapt, but you can no more restore his urethra than you can by dissection or any other process remove a scar from his skin." Believing in the possibility of "restoring the urethra," we can hardly agree with the author in the last statement, but give it as a key to his theory of treatment. The subject of treatment of stricture is, from his standpoint, well handled. He prefers gradual dilatation, and reserves internal urethrotomy for cases which are not likely to be benefited by dilatation; i. e., "the cases which are suited to this plan of treatment (internal urethrotomy) include those resilient forms of stricture which are not only tedious and painful to stretch by gradual dilatation, but which speedily contract on the suspension of treatment." For the purposes of exploration of the urethra, the "plain elastic bougie, with the end slightly rounded—not bulbous—to facilitate its introduction," is recommended; and, for the dilatation of strictures, "the *bougie-à-boule*, with a long, slender, flexible neck supporting the bulb," is stated to be the best. The limit of dilatation is fixed at three or four sizes above No. 12 English; but why, we are not told. In cases of tight stricture where catheterism is attended with more than ordinary difficulty, he uses *continuous dilatation*, and finds that its results compare favorably with those obtained by the gradual method. The temperature of the patient is taken, and a rapid rise in the thermometer is the indication for the withdrawal of the instrument. Strangely enough, no mention is made of the tunneled instruments, whose value is unquestioned by American surgeons. The results that may be expected from dilatation are admitted to be unsatisfactory. Cicatricial or indurated tissue will be *stretched* only, but, "in the earlier forms of stricture, where the obstruction is cellular rather than fibrous, you will find that the introduction of the bougie exercises a healthy stimulus on the part, and leads to the removal of the effusion producing the obstruction."

The whole of the seventh lecture is devoted to the subject of external urethrotomy, under the general head of "Perineal Section," and a description of Mr. Wheelhouse's, or the "Leeds," operation is quoted in full from the *British Medical Journal* (June 24, 1876).

The management of the mechanical obstruction in hypertrophy of the prostate, and of the cystitis arising from it, is referred to in terms flattering to American surgery. In speaking of the treatment of cystitis in general, he objects to the "usual method of pouring in alkalies," and says that "the object should be to obtain that condition of the urine which most nearly corresponds with its normal state, as being the least likely to irritate the bladder." For good sound advice upon the treatment of laceration of the urethra, the lecture upon "injuries to the urethra," etc., is worthy of careful reading. We have had occasion to remark the results of certain methods of practice in these cases, and, in view of such observation, would call particular attention to the ideas of the author upon this subject (*see* pp. 101–103). Perineal section is to be practised in all such cases, whether the patient can urinate or not, or whether a catheter can be passed or not, as the surest means of preventing extravasation of urine, and of diminishing the liability to formation of stricture.

We have space only for this brief notice of some of the principal features of these admirable lectures. For a book intended for students, perhaps too many points of diagnosis are taken for granted, but in general it may be said that it is calculated to be of great value to practitioners as well as students.

Art. III.—*Cyclopædia of the Practice of Medicine.* Edited by Dr. H. von Ziemssen. Vol. XVII. *General Anomalies of Nutrition, and Poisons.* By Prof. H. Immermann, of Basel; Prof. R. Boehm, of Dorpat; Prof. B. Naunyn, of Koenigsberg; and Prof. von Boeck, of Munich. Translated by W. Bathurst Woodman, M. D.; J. Burney Yeo, M. D.; Edward S. Wood, M. D.; Charles Emerson, M. D.; Porter Farley, M. D.; A. Braton Ball, M. D.; and Elwyn Waller, Ph. D. Albert H. Buck, M. D., Editor of American Edition. 8vo, pp. xiv.-968. New York: Wm. Wood & Co. 1878.

The former part of the volume, filling about 280 pages, is written by Immermann. It furnishes a very full account of the hæmorrhagic diathesis, scurvy, and purpura hæmorrhagica. The last-named affection, "Morbus Maculosus Werlhofii," covers about 40 pages; "Scorbutus" covers nearly 140, and "Hæmophilia" about 104 pages. The articles seem to be exhaustive, and they complete the sections on the "General Anomalies of Nutrition."

The remainder of the book, above 660 pages, is occupied with "Poisons." Boehm contributes the section on poisoning by the metalloids, mineral and vegetable acids, alkalies, earths and their salts, anæsthetics, carbon compounds, and poisonous articles of food. Naunyn writes on "Poisoning by the Heavy Metals and their Salts, including Arsenic and Phosphorus;" and Von Boeck writes on "Vegetable Poisons."

The contributors to this portion of the book are all comparatively young men, that is, between thirty and forty years of age, yet they are men who have acquired reputation as being proficient in their respective fields of research. They seem to be in harmony in their methods of presenting the several topics. Their work is characterized especially by the fullness of detail in the physiological action of the various poisons, and the symptomatology, together with the treatment. The articles are very full and practical, and for the most part nearly exhaustive. Nevertheless they are all deficient in one particular, namely, in giving the methods in full for detecting the individual poisons by chemical analysis. There is no general introduction relating to examinations, medico-legal questions, etc., etc., each writer commencing his section with the consideration of the individual poisons. In these respects the work is quite the opposite of the recent treatise by Reese, on "Toxicology." The latter, although wanting in regard to the *action* of the individual poisons, and less full in the symptomatology, is very full and complete in the rules given for detecting poisonous substances. Inasmuch as works on materia medica give accounts of the physiological action of drugs, and our authors presuppose a thorough knowledge of chemistry on the part of the practitioner, we think their work, taken by itself, is less adapted to the wants of the general practitioner than that of Reese, although, of course, the physician's library will be rendered more complete by possessing both works.

In Boehm's article some slight omissions and inaccuracies are corrected by the translators. Naunyn's article, in view of the importance of the included topics, seems disproportionately short, excepting, perhaps, the chapter on "Lead Poisoning." The entire section only occupies 100 pages. The translation in this volume is excellent.

ART. IV.—*Transactions of the American Gynæcological Society.* Vol. II. For the year 1877. Boston: Houghton, Osgood & Co. Cambridge; The Riverside Press, 1878. Pp. 698.

WE have already spoken of this volume as one of the handsomest medical books that has been issued by the American press, and we now take pleasure in recommending the contents as a rich field for gynæcological study. So great is the variety of original papers, that to attempt a review of even the more striking and important of them would exceed the limits of an ordinary notice. We must, therefore, content ourselves with naming the contributors, and advising both specialists and general practitioners to make themselves acquainted with their labors as set forth in the volume before us. The annual address, by the President; Dr. Fordyce Barker, is an able and eloquent plea on behalf of medical gynæcological, as having been somewhat neglected in the pursuit of the "mechanical system of uterine pathology." The following gentlemen furnish papers, many of which are illustrated—that of Dr. Dalton with twelve chromo-lithographic plates: Drs. James R. Chadwick, John Byrne, John C. Dalton, Otto Spiegelberg, George H. Lyman, A. J. C. Skene, George J. Engelmann, William T. Lusk, Ely Van de Warker, William Goodell, Robert Battey, H. P. C. Wilson, Theophilus Parvin, Washington L. Atlee, Paul F. Mundé, Thomas Addis Emmet, W. H. Geddings, G. Kimball, E. Wilson, J. P. Reynolds, A. Reeve, Jackson, T. A. Reamy, H. J. Garrigues, and John Goodman.

A valuable feature of the Transactions is a complete Index of Obstetric and Gynæcological Literature of all countries, from July 1, 1876, to January 1, 1877.

Art. V.—*Human Osteology, comprising a Description of the Bones, with Delineations of the Attachments of the Muscles, the General and Microscopic Structure of Bone, and its Development.* By Luther Holden, F. R. C. S., Vice-President and Member of the Court of Examiners of the Royal College of Surgeons of England; Surgeon to St. Bartholomew's and the Foundling Hospitals. Fifth edition, revised by the author, with the assistance of Alban Doran, F. R. C. S., Pathological Assistant to the Museum of the Royal College of Surgeons of England, etc. With numerous Illustrations. Philadelphia: Lindsay & Blakiston, 1878. Pp. 286. Price, $5.50.

The fifth edition of this most valuable work on osteology has been prepared with great care, and in order to insure greater accuracy most of the plates have been redrawn. The assistance of younger men has been invoked for the purpose of embodying the latest results of anatomical studies and the latest views on the development of bone. The drawings are admirable throughout, and serve to render the study of osteology a positive pleasure. We congratulate the American student on the facility with which he can now obtain possession of a book that needs only to be seen to be appreciated.

Art. VI.—*A Clinical History of the Medical and Surgical Diseases of Women.* By Robert Barnes, M. D., London, Lecturer on Obstetrics and Diseases of Women to St. George's Hospital, etc., etc. Second American from the second and revised London edition. With 181 Illustrations. Philadelphia: Henry C. Lea, 1878.

This work is too well known to require a formal introduction. Of the revised edition we need only say that, while the original size has been preserved, a large amount of new material has been introduced, including a chapter on disorders of the bladder and bowels. This has been accomplished by a careful pruning and rearrangement, which materially enhance the value of the work. The author has here embodied the results of his extensive experience since the appearance of the first edition. A number of new illustrations have been added.

Art. VII.—*Notes on the Treatment of Skin Diseases.* By Robert Liveing, A. M. and M. D., Cantab., F. R. C. P., London. Fourth edition, revised and enlarged. New York: William Wood & Co., 1878. Pp. 127.

The principal alterations in the fourth edition of this little hand-book consist in the addition of an index, some new hints on treatment, and a revision of the chapter on classification.

Books and Pamphlets Received.—Diseases of the Bladder and Urethra in Women. By Alexander J. C. Skene, M. D., Professor of the Diseases of Women in the Long Island College Hospital, etc., etc. New York: William Wood & Co., 1878. Pp. 374. Price, $3.

A Manual of Prescription Writing, with a full Explanation of the Methods of correctly Writing Prescriptions; a Table of Doses expressed in both the Apothecaries' and Metric Systems; Rules for avoiding Incompatibilities and combining Medicines. By Matthew D. Mann, A. M., M. D., Lecturer on Clinical Microscopy and Examiner in Materia Medica and Therapeutics in the College of Physicians and Surgeons, New York; Fellow of the New York Academy of Medicine, and of the New York Obstetrical Society. New York: G. P. Putnam's Sons, 1878. Pp. 156. Price, 90 cents.

Lectures on Dermatology, delivered in the Royal College of Surgeons of England in 1876–'78. Including Derangements of Color of the Skin;

together with Affections of the Nails, Hair System, and Cutaneous Gland System. By Erasmus Wilson, F. R. S., F. R. C. S., Member of Council, and Professor of Dermatology. London: J. & A. Churchill, 1878. Pp. 290.

Practical Surgery: including Surgical Dressings, Bandaging, Ligations, and Amputations. By J. Ewing Mears, M. D., Demonstrator of Surgery in Jefferson Medical College, Surgeon to St. Mary's Hospital, etc. With 227 Illustrations. Philadelphia: Lindsay & Blakiston, 1878. Pp. 280. Price, $2.

Habitual Drunkenness and Insane Drunkards. By John Charles Bucknill, M. D. Lond., F. R. S., Fellow of the Royal College of Physicians, etc. London: Macmillan & Co., 1878. Pp. 103. Price, $1.

Harvey and his Discovery. By J. M. Da Costa, M. D., Professor of the Practice of Medicine at the Jefferson Medical College, Philadelphia. Philadelphia: J. B. Lippincott & Co., 1879. Pp. 57.

Reports on the Progress of Medicine.

SURGERY.

Bradford on Reflex Symptoms in Hip-disease.—Dr. Bradford, of Boston, has examined a large number of cases of hip-disease with regard to the following reflex symptoms: stiffness or limited motion, muscular contraction, muscular irritability, and diminution in electro-muscular contractility. He writes of the first-named of these symptoms:

"Stiffness or limited motion of the hip-joint may rarely be wanting at the very commencement of hip-disease, contrary to what has been taught.

"The symptom is, however, an early and constant one; much more so than the presence of pain or tenderness.

"This limited motion may be so slight as to be only detected by the exercise of great care, or may be enough to cause complete stiffness of the joint. The amount depends probably upon the activity and duration of the process.

"The symptom is also seen in other diseases of the hip-joint.

"In certain affections about the joint, but not involving it, in muscular contractions from various causes, there may be limitation to motion. This symptom is not an early one, and differs from the resistance encountered in the early stage of hip-disease. In hip-disease the motion of the thigh is limited both in flexing and in extending to an equal degree. In affections not involving the joint, the limitation to motion is not so uniform; flexion may be possible to the usual amount, while the motion of extension may be absent.

"Resistance to motion to an equal degree in all directions is highly characteristic of a joint-affection."

As aids to diagnosis the other reflex symptoms are not of great value. But the evidence as to motion in the joint the author considers of great importance, as may be inferred from the concluding sentences of his paper:

"Mistakes in the diagnosis of hip-disease are unfortunately not uncommon. The results of such mistakes are deplorable.

"It has been said that every case of hip-disease passes through a stage when it is called 'rheumatism.' It is precisely at this stage that a diagnosis should be made.

"Cases are not unfrequently seen where a diagnosis of 'incipient' hip-disease is made, although the disease has progressed so far that suppuration of the joint is imminent, it being apparently the opinion of some that hip-disease is not present until grating can be felt on manipulating the joint under an anæsthetic, or, in other words, until the disease has progressed to a dangerous extent.

"The liability to error will be less if the following facts be kept in mind:

"1. Serious disease at the hip-joint may exist when no pain is complained of, and when no tenderness can be discovered.

"2. Hip-disease may be present although the motion at the hip-joint is quite free.

"3. If the motion at one hip-joint is more limited than at the other, hip-disease must always be suspected, and the symptom regarded as highly characteristic of hip-disease.

"4. At the earliest stage, the limitation of motion most readily recognized is in the direction of extension."—*Transactions of the Massachusetts Medical Society*, 1878.

W. T. Bull, M. D.

Miscellany.

The Medical Colleges of the United States.—We have received from Dr. Flint the following letter and list of medical colleges. The list is, we believe, the only correct one that has yet been published:

Editor New York Medical Journal.

Dear Sir: As chairman of a committee to report upon the status of the Medical Colleges of the United States to the American Medical College Association, I have had occasion to note the number of graduates of the various colleges, and it has occurred to me that the statistics thus obtained might interest the readers of the Journal.

Yours very truly,
A. Flint, Jr.

November 16, 1878.

The number of so-called "regular" colleges in the United States is fifty-nine. The following is the number of graduates for each of these colleges, as shown by their latest catalogues. Unless otherwise stated, the graduates are for the year 1878:

Colleges.	No. of Graduates.
Medical College of Alabama	18
Albany Medical College	31
Atlanta Medical College	24
Baltimore College of Physicians and Surgeons	65
Bellevue Hospital Medical College	130
University of Buffalo, Medical Department	42
Chicago Medical College	48
Cincinnati College of Medicine and Surgery	32
Cleveland Medical College	27
Columbus Medical College	50
Detroit Medical College	20
Dartmouth Medical School (1877)	24
Evansville Medical College	Not given
Medical College of Fort Wayne	48
Medical College of Georgia	Not given
University of Georgetown, Medical Department	4
Hospital College of Medicine (Louisville, Ky.)	Not given
Harvard Medical School (Third Class. No List of Graduates given.)	48
Howard University, Medical Department	Not given
Medical College of Indiana	70
Iowa State University, Medical Department	19
Jefferson Medical College	203
College of Physicians and Surgeons (Keokuk, Iowa)	223
Kentucky School of Medicine	24
Kansas City College of Physicians and Surgeons	9
University of Louisville, Medical Department	71
Louisville Medical College	70
University of Louisiana, Medical Department	55
Long Island College Hospital	40
Medical School of Maine	26
University of Maryland, Medical Department	49
University of Michigan, Medical Department	66
University of Missouri, Medical Department	Not given
Missouri Medical College	102
Miami Medical College	50
Memphis Hospital Medical College	Not given
College of Physicians and Surgeons, New York	118
University of the City of New York, Medical Department	153
National Medical College	6
Medical College of Ohio	102
Nashville Medical College (1877)	36

Colleges.	No. of Graduates.
University of Nashville and Vanderbilt University, Medical Department	101
Medical College of the Pacific (1877)	13
University of Pennsylvania, Medical Department	127
Rush Medical College	133
Savannah Medical College	Not given
St. Louis Medical College	49
Syracuse University, Medical Department	14
Starling Medical College	26
Medical College of South Carolina	20
St. Joseph Hospital Medical College	5
Toland Hall, Medical Department of the University of California (1877)	15
Texas Medical College and Hospital	8
University of Vermont, Medical Department	33
Medical College of Virginia (1877)	11
University of Virginia, Medical Department (1877)	13
University of Wooster, Medical Department (1877)	31
Willamette University, Medical Department	6
Yale College, Medical Department	Not given
Total	2,708

Appointments, Honors, etc.—Drs. Emil Noeggerath, James B. Hunter, and Charles Carroll Lee, have been appointed Attending Surgeons to the New York State Woman's Hospital. The number of Attending Surgeons has been increased from four to six.

Dr. George F. Shrady has been appointed Attending Surgeon to St. Francis's Hospital.

Dr. Lewis A. Sayre has been elected an honorary member of the British Medical Association. Medical Director J. Winthrop Taylor, U. S. N., has been appointed Surgeon-General of the Navy, Surgeon Grier having retired on account of age.

Professor Erasmus Wilson has paid Mr. John Dixon, civil engineer, fifty thousand dollars for the erection of Cleopatra's Needle on the banks of the Thames. Professor Lister has been appointed one of Her Majesty's Surgeons Extraordinary. Mr. Sampson Gamgee has been elected a Fellow of the Academy of Medicine and Surgery of Rome. Dr. Milner Fothergill has been elected an Associate Fellow of the College of Physicians of Philadelphia. Surgeon-Major J. H. Porter, of the British Army, has been awarded a bronze medal at the Paris Exhibition for his collection of splints and apparatus for aiding sick and wounded. Dr. Bardeleben has been appointed Dean of the Faculty of Medicine in the University of Berlin.

Deaths from Chloroform.—The *Medical Times and Gazette* of October 19th reports the death from chloroform of a man thirty-four years of age. He was admitted to the Sheffield General Infirmary, where the accident occurred, for operation on a fistula in ano, but died prior to the proposed operation, after inhaling about two drachms of chloroform. The *post mortem* showed a dilated and fatty heart, but "auscultation had revealed nothing wrong" about that organ.

The same journal reports the death from chloroform of a woman thirty-eight years old, in the Whitworth Hospital, Dublin, October 9th. The anæsthetic was given for the reduction of a dislocation of both bones of the forearm. The inhalation had been continued thirteen minutes when death occurred. The heart was found to be "flabby," and the wall of the right ventricle attenuated.

The same journal, October 26, 1878, reports a death from chloroform in the Newcastle-on-Tyne Infirmary, October 15th. The victim was a lad of fifteen, who had an operation done on a painful stump, the arm having been amputated seven years previously. Death took place immediately after the operation, and all efforts to restore life proved unavailing. The quantity of chloroform used was about two drachms and a half, of which a considerable quantity must have been wasted.

An Enormous Calculus.—At a meeting of the Islington Medical Society (*Lancet*, November 2d) Dr. Brown presented a human bladder containing three stones, weighing in the aggregate only twenty grains less than one pound and a quarter. The largest stone weighed three quarters of a pound, less twenty grains. The diagnosis of stone had been made twenty-five years before death, but the man had persistently refused operation. The stones were smooth and of phosphatic composition.

The Journal of Physiology.—We have received numbers of this journal from One to Five, making in all over five hundred pages. The *Journal of Physiology* is edited by Michael Foster, with the coöperation of Prof. A. Gamgee, Prof. W. Rutherford, Prof. J. B. Sanderson, Prof. H. P. Bowditch, Prof. H. N. Martin, and Prof. H. C. Wood. The papers are of a high order of excellence, and should be in the hands of all who are interested in the study of physiology. The *Journal* is published by Macmillan & Co.

Refreshments for Dispensary Patients.—Arrangements have been made in the out-patient department of St. Thomas's and Guy's Hospitals, London, for the supply, at a small charge, of such simple refreshments as tea, coffee, milk, rolls, etc., to patients waiting their turn for treatment. The total attendance at the out-door department of St. Thomas's, including accidents, was last year nearly 140,000.

Tobacco as a Slow Poison.—It was stated at the Hygienic Congress, held in Paris during last summer, that one Dr. Strohen, eighty-six years of age, the father of eleven children, and in the enjoyment of perfect health, had for sixty-five years smoked fifteen cigars daily.

Lectures on Nervous Diseases.—Dr. Allan McLane Hamilton is delivering a course of clinical lectures on Nervous Diseases at the Hospital for Epileptics, Blackwell's Island. The next lectures will be December 6th and 13th.

A New Pathological Laboratory.—We take much pleasure in directing attention to the following resolutions:

College of Physicians and Surgeons,
Medical Department of Columbia College,
New York, *November* 25, 1878.

To the Editor of the New York Medical Journal.

Sir: Pursuant to a vote of the faculty of this college, at a meeting held on October 31, 1878, I have the honor to forward for publication the following resolutions:

Whereas, the Association of the Alumni of the College of Physicians and Surgeons has informed this faculty that it has equipped and endowed a Pathological Laboratory for the use of students of this college, to be known as the Pathological Laboratory of the Alumni Association of the College of Physicians and Surgeons; and

Whereas, the Alumni Association has indicated Prof. Francis Delafield as its choice for director of the same: therefore, be it

Resolved, by the Faculty of the College of Physicians and Surgeons, Medical Department of Columbia College, in the City of New York, that this faculty cannot too heartily express its thanks to the Alumni Association for this important and much-needed addition to the educational resources of the college, nor too warmly express its appreciation of the public spirit of the individual graduates, whose generosity has made the founding of the said laboratory possible.

Resolved, that the choice indicated by the Alumni Association of Prof. Francis Delafield for director of the laboratory, meets with the cordial approbation of this faculty.

Resolved, that it is hereby respectfully recommended to the Board of Trustees that the office be created, in this college, of Director of the Pathological Laboratory of the Alumni Association of the College of Physicians and Surgeons; and that Prof. Francis Delafield be appointed to the said office.

Resolved, that the Secretary of the Faculty is hereby instructed to communicate this preamble and these resolutions to the Board of Trustees; and, in the event of the recommendations therein contained being carried into effect by the Board of Trustees, to read the said preamble and resolutions to the medical class, to publish them in two medical journals, and to forward a copy of them to the Secretary of the Association of the Alumni.

Very respectfully yours,
JOHN G. CURTIS, M. D.,
Secretary of the Faculty.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from October 14 *to November* 13, 1878.

BAILY, J. C., Major and Surgeon.—Granted leave of absence for one month, with authority to go beyond limits of Division. S. O. 159, Division of the Pacific and Department of California, October 15, 1878.

Janeway, J. H., Major and Surgeon.—Relieved from duty in Department of the South, and ordered to duty in Department of the East. S. O. 235, A. G. O., October 30, 1878.

Notson, William M., Major and Surgeon.—Granted leave of absence for four months. S. O. 221, A. G. O., October 14, 1878.

Bartholf, J. H., Captain and Assistant Surgeon.—Relieved from duty in Department of the Columbia, and assigned to duty in Department of California. S. O. 235, C. S., A. G. O.

Yeomans, A. A., Captain and Assistant Surgeon.—Granted leave of absence for one month on Surgeon's certificate of disability, with permission to leave the Department. S. O. 229, Department of Texas, October 29, 1878.

Loring, L. Y., Captain and Assistant Surgeon.—Relieved from duty at Jefferson Barracks, Mo., and assigned to duty in Department of the Missouri, to take effect November 25, 1878. S. O. 235, C. S., A. G. O.

Fitzgerald, J. A., Captain and Assistant Surgeon.—Granted leave of absence for six months. S. O. 236, A. G. O., October 31, 1878.

Corson, J. K., Captain and Assistant Surgeon.—Assigned to duty as Post Surgeon at Fort Yuma, California. S. O. 119, Department of Arizona, October 10, 1878.

Ainsworth, F. C., First Lieutenant and Assistant Surgeon.—Assigned to duty as Post Surgeon at Fort Whipple, A. T. S. O. 119, C. S., Department of Arizona.

Havard, V., First Lieutenant and Assistant Surgeon.—Assigned to duty at Chattanooga, Tennessee. S. O. 66, Department of the South, October 22, 1878.

Finley, J. A., First Lieutenant and Assistant Surgeon.—Relieved from duty at Fort Elliott, Texas, and assigned to duty at Fort Wallace, Kansas. S. O. 203, Department of the Missouri, November 6, 1878.

De Loffre, A. A., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of the Missouri, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 235, C. S., A. G. O.

Wilcox, F. E., First Lieutenant and Assistant Surgeon.—Relieved from duty in Department of the Missouri, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 235, C. S., A. G. O.

Barnett, R., First Lieutenant and Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for an extension of one month. S. O. 93, Department of the Platte, October 14, 1878.

Newlands, William L., First Lieutenant and Assistant Surgeon.—His resignation accepted by the President, to take effect October 25, 1878. S. O. 234, A. G. O., October 28, 1878.

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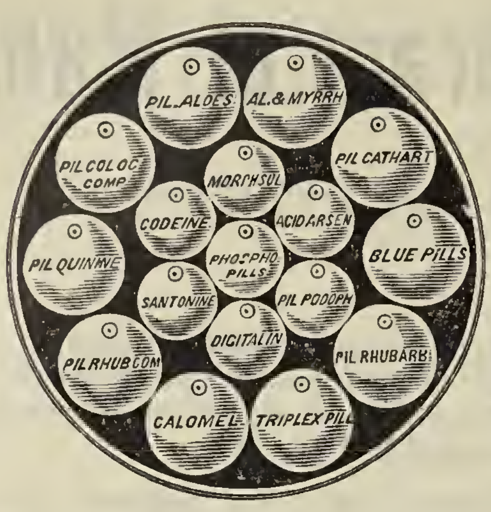

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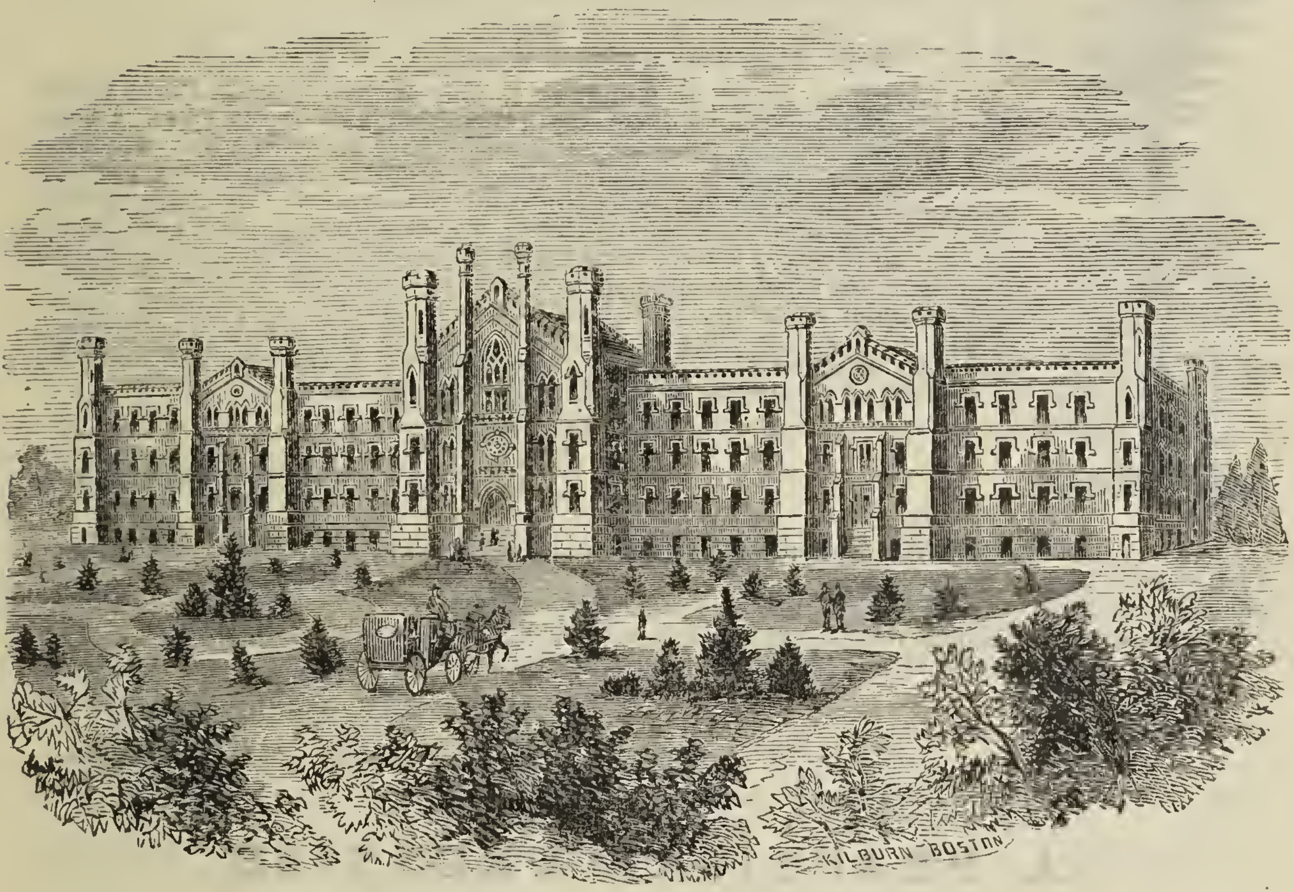

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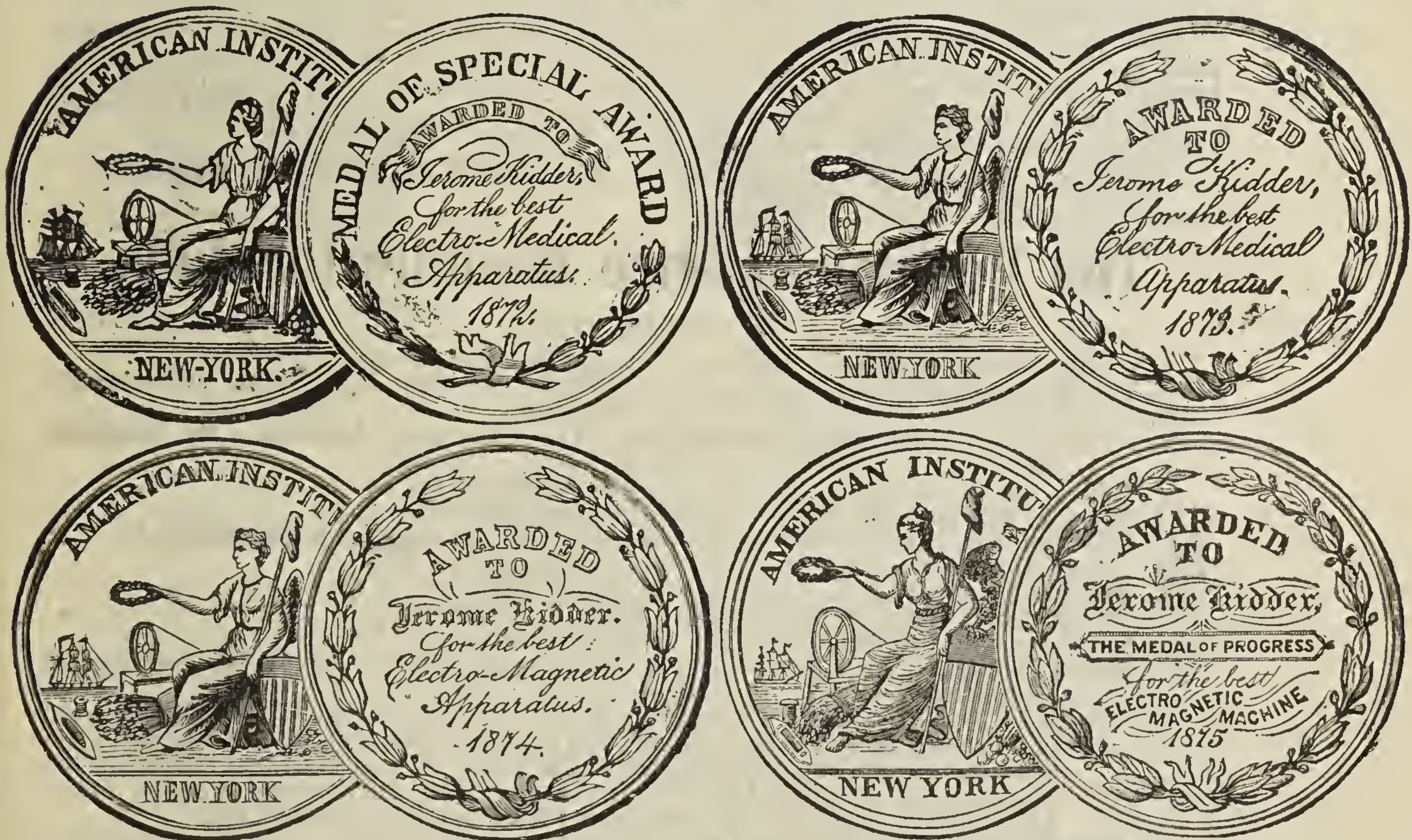
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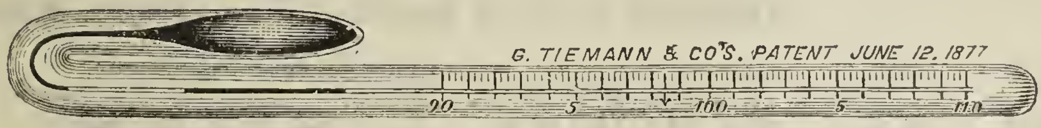
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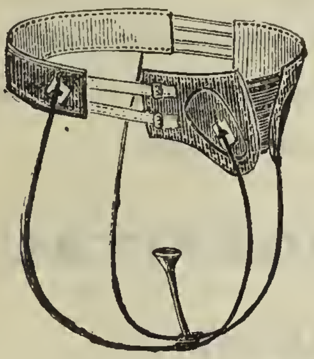

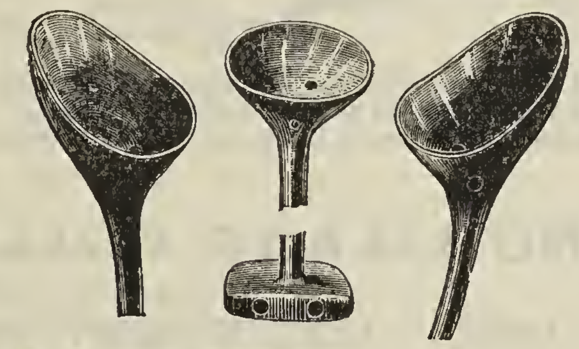

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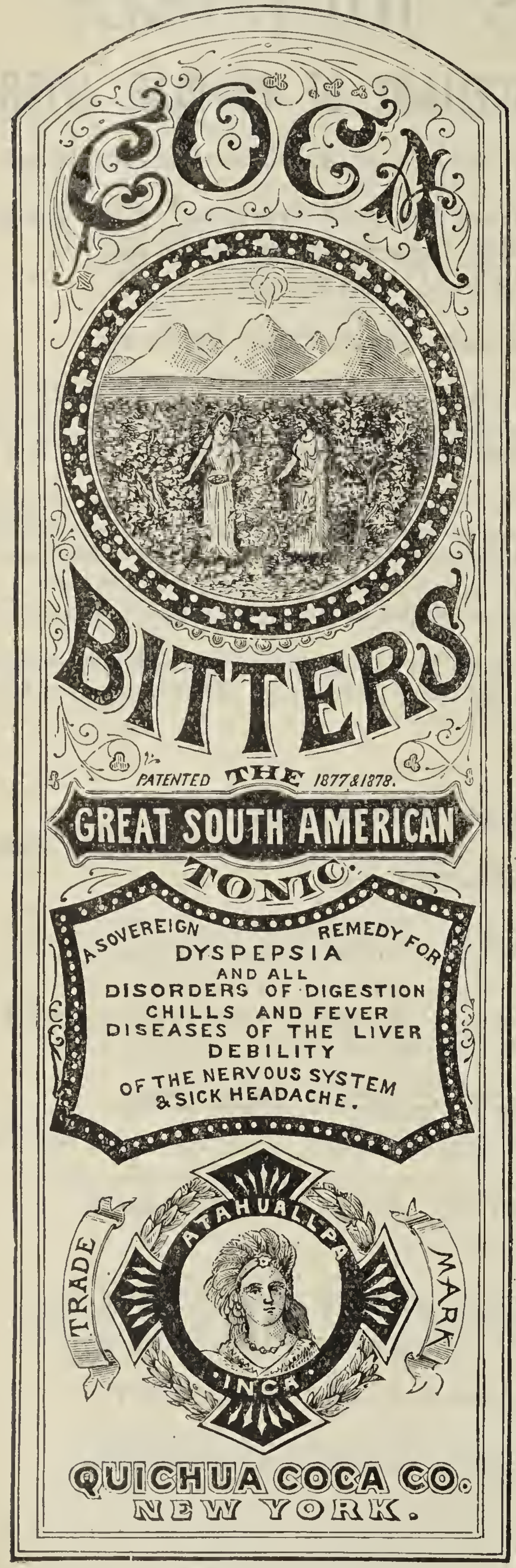

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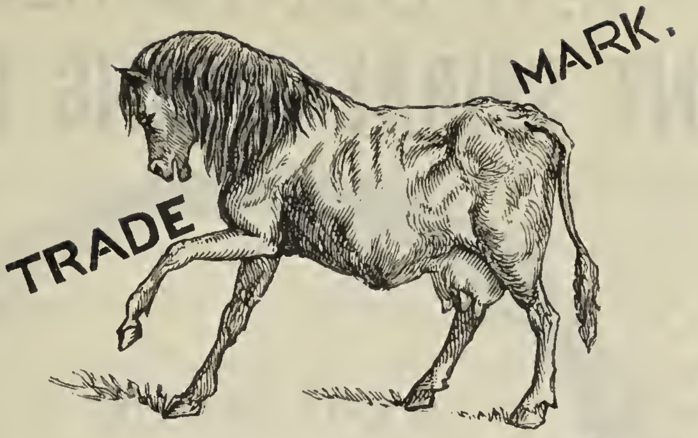

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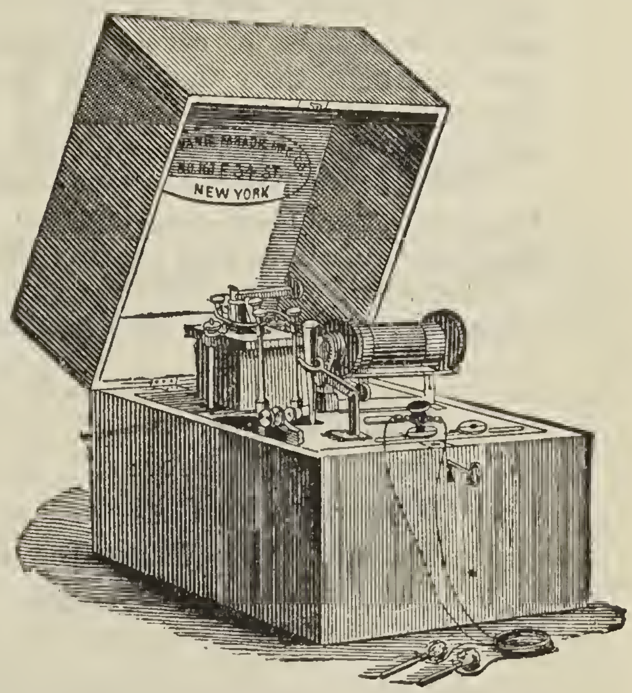

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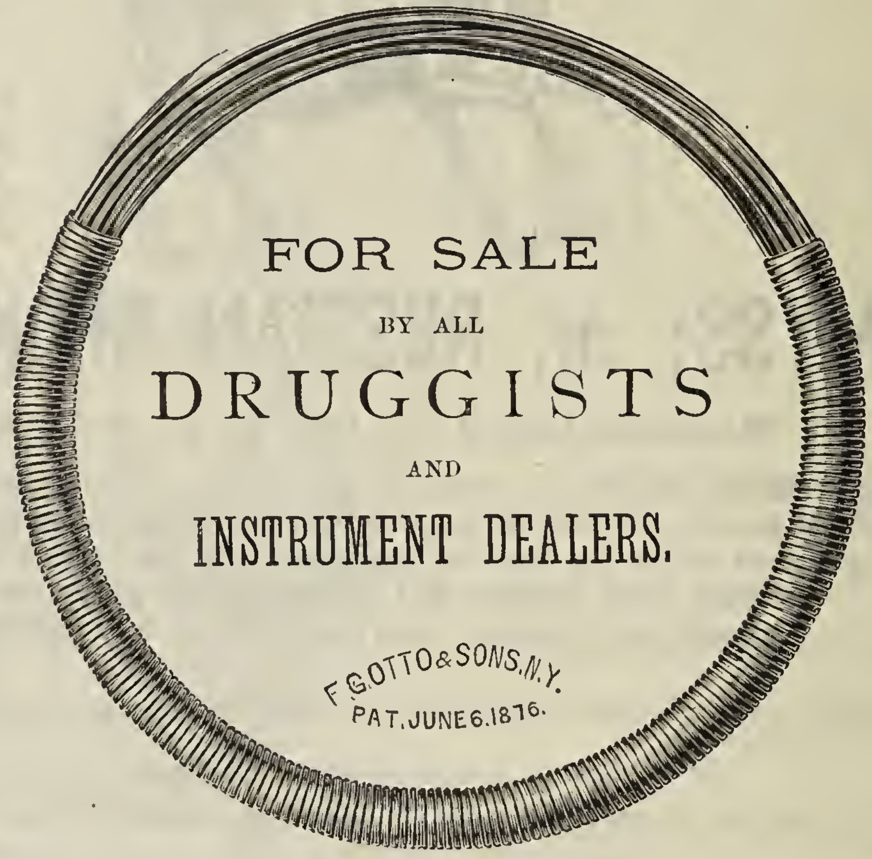
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FRANK W. DRAPER, M. D., } *Lecturers on Hygiene.*
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JOHN O. GREEN, M. D., and CLARENCE J. BLAKE, M. D., *in Otology.*
CHARLES P. PUTNAM, M. D., and JOSEPH P. OLIVER, M. D., *in Diseases of Children.*
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Persons who hold no degree in arts or science must pass an *examination for admission* to this School, in Latin, in the elements of Physics, and in English. French or German will be accepted instead of Latin. The admission examination will be held June 24th, both at Boston and at Cincinnati; on September 23d, at Boston only.

Instruction is given by lectures, recitations, clinical teaching, and practical exercises, distributed throughout the academic year. The year begins September 26, 1878, and ends on the last Wednesday in June, 1879. It is divided into two equal terms, either of which is more than equivalent to the former "Winter Session," as regards the amount and character of the instruction. The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another in a just and natural order. In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is largely substituted for, or added to, the usual methods of instruction.

Instead of the customary oral examination for the degree of Doctor of Medicine, at the end of the three years' period of study, a series of written examinations on all the main subjects of medical instruction is held at the end of each year; and every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction during his period of study.

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For the First Year.—Anatomy, Physiology, and General Chemistry.

For the Second Year.—Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, Surgery, and Clinical Surgery.

For the Third Year.—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Students are divided into three classes, according to their time of study and proficiency. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the second or third year's class must pass an examination in the branches already pursued by the class to which they seek admission. The examinations are held in the following order:

At the end of the first year.—Anatomy, Physiology, and General Chemistry.

End of second year.—Medical Chemistry, Materia Medica, and Pathological Anatomy.

End of third year.—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Examinations are also held before the opening of the School, beginning September 23d.

Requirements for a Degree.—Every candidate must be twenty-one years of age; must have studied medicine three full years, have spent at least one continuous year at this School, have passed the required examinations, and have presented a thesis.

Course for Graduates.—For the purpose of affording to those already Graduates of Medicine additional facilities for pursuing clinical, laboratory, and other studies, in such subjects as may specially interest them, the Faculty has established a course which comprises the following branches: Histology; Physiology; Medical Chemistry; Pathological Anatomy; Surgery; Auscultation, Percussion, and Laryngoscopy; Ophthalmology; Dermatology; Syphilis; Psychological Medicine; Otology; Electro-therapeutics; Gynæcology; and Obstetrics. On payment of the full fee the privilege of attending any of the other exercises of the Medical School, the use of the laboratories and library, and all other rights accorded by the University, will be granted. Single branches may also be pursued. Graduates of other Medical Schools, who may desire to obtain the degree of M. D. at this University, will be admitted to examination for this degree after a year's study in the Graduates' Course. Examination on entrance not required.

Fees.—For Matriculation, $5; for the Year, $200; for one Term alone, $120; for Graduation, $30. For Graduates' Course, the fee for one year is $200; for one Term, $120; and for single courses such fees as are specified in the Catalogue. Payment in advance.

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Trembling,
Indigestion,
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BELLEVUE HOSPITAL MEDICAL COLLEGE,

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SESSIONS OF 1878-'79.

THE COLLEGIATE YEAR in this Institution embraces a preliminary Autumnal Term, the Regular Winter Session, and a Spring Session.

THE PRELIMINARY AUTUMNAL TERM for 1878–1879 will open on Wednesday, September 18, 1878, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures upon special subjects and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term, clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.*

THE REGULAR SESSION will begin on Wednesday, October 2, 1878, and end about the 1st of March, 1879.

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Emeritus Professor of Obstetrics and Diseases of Women, and President of the Faculty.

JAMES R. WOOD, M. D., LL. D.,
Emeritus Professor of Surgery.

FORDYCE BARKER, M. D.,
Professor of Clinical Midwifery and Diseases of Women.

AUSTIN FLINT, M. D.,
Professor of the Principles and Practice of Medicine and Clinical Medicine.

W. H. VAN BUREN, M. D.,
Professor of Principles and Practice of Surgery, Diseases of Genito-Urinary System, and Clinical Surgery.

LEWIS A. SAYRE, M. D.,
Professor of Orthopedic Surgery and Clinical Surgery.

ALEXANDER B. MOTT, M. D.,
Professor of Clinical and Operative Surgery.

WILLIAM T. LUSK, M. D.,
Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

WILLIAM M. POLK, M. D.,
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AUSTIN FLINT, JR., M. D.,
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JOSEPH D. BRYANT, M. D.,
Professor of General, Descriptive, and Surgical Anatomy.

R. OGDEN DOREMUS, M. D., LL. D.,
Professor of Chemistry and Toxicology.

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Professor of Pathological Anatomy and Histology, Diseases of the Nervous System, and Clinical Medicine.

PROFESSORS OF SPECIAL DEPARTMENTS, Etc.

HENRY D. NOYES, M. D.,
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JOHN P. GRAY, M. D., LL. D.,
Professor of Psychological Medicine and Medical Jurisprudence.

ERSKINE MASON, M. D.,
Clinical Professor of Surgery.

EDWARD L. KEYES, M. D.,
Professor of Dermatology, and Adjunct to the Chair of Principles of Surgery.

J. LEWIS SMITH, M. D.,
Clinical Professor of Diseases of Children.

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A distinctive feature of the method of instruction in this College is the union of clinical and didactic teaching. All the lectures are given within the Hospital grounds. During the Regular Winter Session, in addition to four didactic lectures on every week-day except Saturday, two or three hours are daily allotted to clinical instruction.

The Spring Session consists chiefly of Recitations from Text-books. This term continues from the first of March until the first of June. During this Session, daily recitations in all the departments are held by a corps of examiners appointed by the Faculty. Regular clinics are also given in the Hospital and in the College building.

FEES FOR THE REGULAR SESSION.

Fees for Tickets to all the Lectures during the Preliminary and Regular Term, including Clinical Lectures	$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00

FEES FOR THE SPRING SESSION.

Matriculation (Ticket good for the following Winter)	$5 00
Recitations, Clinics, and Lectures	35 00
Dissection (Ticket good for the following Winter)	10 00

Students who have attended two full Winter courses of lectures may be examined at the end of their second course upon Materia Medica, Physiology, Anatomy, and Chemistry, and, if successful, they will be examined at the end of their third course upon Practice of Medicine, Surgery, and Obstetrics only.

For the Annual Circular and Catalogue, giving regulations for graduation and other information, address Prof. AUSTIN FLINT, Jr., Secretary, Bellevue Hospital Medical College.

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